A POSITION PAPER · LEGISLATIVE EDITION

The Scientific Case Against Aversive Dog Training Equipment and Methods

Convergent welfare evidence and policy recommendations for the United States.

Companion to the Practitioner Edition and the Studies Playbook: Peer-Reviewed Literature Behind the Force-Free Position.

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Foreword

I have spent years working as a force-free dog trainer and behavior consultant, and the longer I spend in this field, the clearer one observation becomes. The science is not the problem. The peer-reviewed welfare research on aversive dog training equipment and aversive handling techniques has been consistent for a long time. The international veterinary profession has reached a formal consensus position, articulated most recently in the June 2024 joint position paper by the Federation of Veterinarians of Europe, the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal Veterinary Association. The regulatory precedent is established. By 2026, twenty-seven enacted jurisdictions, including Wales, Switzerland, Germany, Gibraltar, Belgium-Wallonia, Quebec, and a growing list of state and provincial governments in Australia and Canada, have prohibited the sale or use of these devices in some combination. None of them has published evidence of public-safety harm attributable to the prohibition.

The problem is not the evidence. The problem is that the United States has not yet acted on it.

That is what this paper exists to address.

The peer-reviewed welfare research does not point in different directions depending on who reads it. Independent research groups, working in different countries, using different populations, different methodologies, and different outcome measures, have repeatedly found the same pattern. Aversive control is not necessary. It does not produce training outcomes superior to reward-based methods. It comes with welfare costs that reward-based methods do not. Some of those costs are behavioral. Some are physiological. Some, in the specific case of neck-pressure equipment, are mechanical, and they have been documented in peer-reviewed veterinary research. The agreement across these literatures is what scientists call convergent evidence. It is the strongest kind of evidence a body of research can produce, and it is the kind of evidence we have on this question.

I wrote this paper because that evidence has not been pulled together in one place at the level of detail a state legislative committee needs in order to act on it. The international veterinary position statements are short and conclusory. The peer-reviewed welfare studies are technical and require domain knowledge to read. The comparative jurisdictional record is scattered across statutes in a dozen languages and across legal systems with different drafting conventions. A legislative aide working a hearing memo on a state-level bill regulating aversive training equipment, or on a state-level bill licensing dog trainers under non-aversive standards, has not, until now, had a single document that consolidates all of that material in a form built for legislative work.

The Legislative Edition of this paper is that document.

It states the policy ask. It states the evidence base in the form the peer-reviewed literature supports. It states the international veterinary consensus. It catalogs every jurisdiction that has acted, with statutory authority, effective date, scope, and years of operation. It does not ask your committee to take any of that on the author's authority. Every claim in this paper is sourced to peer-reviewed literature, published policy statements of named organizations, or statutory and regulatory text on the public record.

It is 2026. The peer-reviewed welfare science has been consistent for years. The international veterinary consensus has been formal since 2024. Multiple jurisdictions have operated under bans for more than a decade without producing any published evidence of harm from prohibition. The case for change is not novel, and it is not radical. It is the case the evidence has been making for a long time. What is new is that the case is now in front of your state.

That is why I wrote this paper.

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How to Use This Document

This is the Legislative Edition of The Scientific Case Against Aversive Dog Training Equipment and Methods. It is written for state legislators, legislative aides, policy staff, and the legal and animal welfare professionals who advise them. It states the policy ask, the evidence base, the international veterinary consensus, and the jurisdictional precedent in the form a state committee needs in order to act. A separate Practitioner Edition, retaining additional sections on rhetorical decoding and section-by-section response to common proponent objections, is available for trainers, behavior consultants, and applied animal behaviorists.

What this document asks your state to do

This paper makes two related but distinct policy arguments. The primary argument is that your state should ban the sale and use of aversive dog training equipment, including electronic collars, prong collars, choke collars, and citronella and scentless-air spray collars (with ultrasonic and audible-tone variants addressed under standards of practice in Section 10), and should prohibit aversive handling techniques (alpha rolls, dominance downs, scruff shakes, helicoptering, and similar) in commercial training and behavior modification. This is the central case the paper is built to support. The legislative architecture for this kind of ban is already in place in Wales, Switzerland, Germany, Quebec, and the other jurisdictions cataloged in Section 7.4.

The secondary argument, developed in Section 10, is that an equipment-and-methods ban raises an obvious follow-up question: if these tools and techniques are prohibited, what should commercial trainers do instead? The paper points to a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework. State licensure of trainers is the mechanism by which that standard would be enforced. The full case for trainer licensure is a project deserving its own paper. The treatment in Section 10 provides enough of that case to support the licensure bills already in motion in New York (Senate Bill S 7723 and Assembly Bill A 6985) and New Jersey (Assembly Bills A 4206 and A 4207, with the earlier Senate Bill S 3814 held by sponsor in February 2025), and to give legislators considering the equipment-and-methods ban a clear answer to the follow-up question.

How to read this document

If you have ten minutes, read the Executive Summary. It states the policy ask, the evidence base in summary, the international veterinary consensus, and the jurisdictional precedent.

If you have an hour, read the Executive Summary, then Section 7 (Professional and Regulatory Consensus, including the comparative jurisdictional table at Section 7.4), then Section 10 (Recommended United States Policy).

If you have an afternoon, read the document straight through. Sections 2 through 6 develop the welfare evidence and the necessity-claim analysis on which the policy recommendations rest. Section 8 documents how the equipment is actually used in the real world. Section 11 closes.

Section numbering in this Legislative Edition is preserved from the full policy paper to maintain cross-reference consistency. The full paper's Section 9, which catalogs practitioner-facing rebuttals to common proponent objections, terminology and rhetorical decoders, and defensive-justification responses, is omitted from this edition because it is not material a state legislative committee needs in order to act. The body therefore moves directly from Section 8 to Section 10.

How to use the companion documents

This Legislative Edition is the policy paper. Two companion documents extend the reference material in directions that may be useful for legislative drafting and committee work. Each is independently downloadable.

The Studies Playbook contains a per-study profile of every peer-reviewed study cited in this paper. It is the document to consult when committee staff need to verify a citation, summarize a study for a hearing memo, or assess a study's design and limitations.

The Jurisdiction Playbook contains a per-jurisdiction profile of every legislative and regulatory action cataloged in Section 7.4. It expands the comparative table into individual profiles with statutory authority, effective date, scope of prohibition, enforcement and penalty structure, and years of operation. It is the document to consult when drafting legislation modeled on a specific jurisdiction.

A note on how the paper makes its claims

This paper presents the welfare and policy case in literature-claim form rather than in categorical form. Where the question of harm from prohibition is addressed, the paper says that no published study has attributed measurable public-safety harm to electronic collar prohibition in any jurisdiction that has banned the equipment. It does not say categorically that no harm has occurred. This distinction reflects the actual state of the published evidence and is a deliberate authorial choice. Legislative readers should expect the same register throughout: the paper says what the peer-reviewed literature supports, in the form the literature supports it.

Executive Summary

The United States should adopt animal welfare policy banning the sale and use of aversive training equipment for dogs. The equipment in question is electronic collars (remote, bark-activated, and containment variants), prong or pinch collars, choke collars (also called choke chains or slip collars), and citronella and scentless-air spray collars (ultrasonic and audible-tone variants are addressed under professional standards of practice rather than under the equipment-prohibition framework, as detailed in Section 10). Alongside that prohibition, the United States should adopt a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework, enforced through state licensure of trainers and behavior consultants. This recommendation is aligned with the position statements of the international veterinary profession, the largest national veterinary associations in the English-speaking world, the major animal welfare organizations, and the leading professional training and behavior bodies.

The case rests on a definition. When an aversive piece of equipment or an aversive handling technique reduces a behavior, it is functioning as positive punishment. When a behavior increases because performing it terminates, avoids, or prevents an unpleasant event, it is functioning as negative reinforcement. Both mechanisms require the stimulus to function as an aversive event for the dog. That requirement is the same whether the aversive is electrical stimulation from an electronic collar, mechanical nociceptive input from a prong collar, compressive airway and vascular restriction from a choke collar, or direct physical confrontation such as an alpha roll, scruff shake, leash jerk, or helicoptering. Aversive control comes with documented welfare costs across multiple independent lines of peer-reviewed research: stress-related behavior, conflict behaviors, suppressed body language, conditioned emotional responses to cues and context, negative affective bias, and, in some studies, elevated cortisol. For the equipment that applies physical force to the canine neck, the costs additionally include measurable mechanical effects: elevated intraocular pressure during ordinary pulling, neck pressures in injury-relevant ranges, and, in at least one peer-reviewed case report, severe ischemic brain damage leading to euthanasia following a punitive choke-chain hanging technique.

The necessity claim fails. Cooper and colleagues (2014) and China, Mills, and Cooper (2020) both ran controlled studies showing that dogs trained without electronic collars achieve outcomes equal to or better than dogs trained with them. Head-to-head comparative studies pitting prong and choke collars against reward-based methods in everyday pet training contexts have likewise failed to produce evidence of necessity. Herron, Shofer, and Reisner (2009) add a more specific finding about confrontational handling: alpha rolls, dominance downs, scruff shakes, and hit or kick corrections produced aggressive responses in a substantial fraction of the dogs on whom they were attempted, including dogs without prior aggression history. Two senior fear-conditioning researchers whose published work is sometimes cited to justify electronic collar use, Dr. Luiz Pessoa (corresponding author of Limbachia et al., 2021) and Dr. David Knight (corresponding author of Wood et al., 2014), have each independently confirmed in writing that their research does not support treating predictable, controllable aversive stimulation as neurologically neutral or welfare-benign (L. Pessoa, personal communication, April 10, 2026; D. C. Knight, personal communication, April 17, 2026).

Professional consensus is explicit and international. In June 2024, four major international veterinary organizations, the Federation of Veterinarians of Europe, the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal Veterinary Association, unanimously adopted a joint position paper formally calling for a complete ban on the sale and use of electric pulse training devices including electric shock collars for dogs (FVE, FECAVA, FEEVA, and WSAVA, 2024). The American Veterinary Society of Animal Behavior names electronic collars, prong collars, choke chains, leash corrections, and other forms of physical or psychological punishment as aversive methods that should not be used under any circumstances (AVSAB, 2021). The American College of Veterinary Behaviorists, the American Animal Hospital Association, the British Veterinary Association, the British Small Animal Veterinary Association, the Australian Veterinary Association, the Canadian Veterinary Medical Association, the New Zealand Veterinary Association, and the European Society of Veterinary Clinical Ethology have each independently reached the same position. The largest animal welfare organizations in the English-speaking world have reached it. The leading professional training and behavior organizations have reached it.

Jurisdictions around the world have already acted. Twenty-seven enacted jurisdictions across Europe, Australia, Quebec, Latin America, the British Overseas Territory of Gibraltar, and several US states have legislated against aversive dog training equipment in some combination. Wales banned electronic collars under a Welsh Statutory Instrument made under the Animal Welfare Act 2006. Switzerland’s Animal Protection Ordinance prohibits spiked, pinch, and electronic collars. Germany (under case-law interpretation of its Animal Welfare Act), Austria, France (in professional contexts), Spain, Sweden, Finland, Norway, Denmark, the Netherlands, Slovenia, and Colombia have all enacted bans on various combinations of these devices. Belgium-Flanders has enacted a future electric-collar prohibition taking effect 1 January 2027, while Belgium-Wallonia has prohibited the use of electric, choke, and prong or spiked collars under a regional order in force since 1 April 2023. Gibraltar enacted a statutory criminal prohibition covering electronic, choke, and pronged collars on cats and dogs, gazetted 23 March 2026 under the Animals (Amendment) Act 2025. Quebec’s Animal Welfare and Safety Regulation prohibits collars that interfere with breathing or cause pain or injury, language the Ministry of Agriculture has applied specifically to electronic and prong collars. In Australia, Victoria, Tasmania, and Queensland have banned pronged collars through their respective state legislation, and electronic collars are prohibited in the Australian Capital Territory, New South Wales, and South Australia. The Australian federal government additionally bans the import of pronged collars. None of these jurisdictions has published evidence of public-safety harm attributable to the prohibition. The United States is now out of step with international veterinary consensus and with international regulatory practice.

Real-world use data compound the welfare and necessity arguments. Masson, Nigron, and Gaultier (2018) surveyed 1,251 respondents in France about electronic collar use and found that 71.8 percent of users operated the equipment without professional advice, that 75 percent had tried two or fewer alternative methods before reaching for the collar, and that 7 percent of dogs on which collars had been used presented with physical wounds (Masson et al., 2018b). Lines, van Driel, and Cooper (2013) examined the electrical characteristics of thirteen commercially available electronic training collar models and documented an eighty-seven-fold range in stimulus energy at maximum settings across products marketed for the same use category, with no manufacturer disclosure of pulse parameters at the point of sale. The United States has no Food and Drug Administration regulation, no Consumer Product Safety Commission standard, and no state-level technical standard for these devices. United States public attitude data conducted by Edelman Intelligence and reported by Petco in October 2020 found that 70 percent of dog guardians believe shock collars negatively impact their pet's emotional or mental wellbeing, that 69 percent consider shock collars a cruel training method, and that 59 percent of pet guardians would prefer to shock themselves than their dog (Petco, 2020). On the available data, the substantial majority of United States guardians already perceive these devices as harmful.

The recommended policy has two complementary components. The first is a prohibition on aversive training equipment, removing electronic, prong, choke, and citronella and scentless-air spray collars from the consumer marketplace through legislation that regulates sale, import, and use, with ultrasonic and audible-tone variants regulated under professional standards of practice rather than under the equipment-prohibition framework. The second is the adoption of a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework, enforced through state licensure of trainers and behavior consultants. Equipment prohibition without standards of practice leaves confrontational handling techniques unaddressed. Standards of practice without equipment prohibition leaves the equipment available on the consumer market. Both components are necessary. Active legislative interest in the licensing component is already in motion at the United States state level, with pending proposals in New York (Senate Bill S 7723 and Assembly Bill A 6985), New Jersey (Assembly Bills A 4206 and A 4207; Senate Bill S 3814 was held by sponsor following committee testimony in February 2025), Massachusetts (House Bill H 2342 and Senate Bill S 1459), and Rhode Island (House Bill H 7487), as documented in Section 7.4. Together, these two components accomplish what the international veterinary, professional, and welfare consensus has called for: the comprehensive removal of aversive control as the basis of canine training and behavior modification in the United States. A United States policy of this kind is not a radical proposal. It is a measured, conservative response to convergent scientific evidence, international veterinary consensus, and the welfare risks documented in the peer-reviewed literature.

1. Introduction: The Wrong Question and the Right One

Debates about aversive training equipment and aversive training methods almost always get trapped inside the wrong question. The wrong question is whether these tools and methods work. The right question is how they work, what welfare costs come with that mechanism, whether those costs are necessary, and whether broad public access to such devices and methods is justified when safer alternatives exist.

Electrical stimulation delivered contingently can decrease unwanted behavior. So can mechanical nociceptive stimulation. So can physical confrontation. Any sufficiently unpleasant consequence delivered contingently can decrease unwanted behavior. None of that is in dispute within learning theory. But efficacy alone does not establish welfare neutrality, necessity, or ethical justification. Many interventions can suppress behavior. The capacity to suppress behavior is not, on its own, a sufficient reason to leave an intervention on the consumer market or in the professional standards of practice.

A dog may stop chasing, lunging, barking, or failing to recall for several different reasons. The underlying emotional motivation may have changed. Another behavior may have become more reinforcing in that context. Or the original behavior may now predict an unpleasant consequence that the dog is working to avoid. Those are not equivalent outcomes. One reflects changed motivation or learned alternatives. The other reflects suppression, escape, avoidance, or threat prediction. Policy that treats suppression as equivalent to resolution is not evidence-based policy.

The argument that follows applies to all aversive training equipment and all aversive handling techniques as a single, unified category. That is not a stylistic shortcut. It is the way the international veterinary and welfare consensus already treats these tools and methods. The American Veterinary Society of Animal Behavior, the American Animal Hospital Association, the Australian Veterinary Association, the British Small Animal Veterinary Association, and the joint international veterinary position paper adopted by the Federation of Veterinarians of Europe and the World Small Animal Veterinary Association in 2024 all treat them this way. The reason is scientific, not rhetorical. The mechanism of action across electronic, mechanical, and confrontational modalities is the same: positive punishment or negative reinforcement via an aversive event. The welfare concerns that follow from that mechanism are the same. The convergent research documenting those welfare concerns spans all three modalities. Treating these tools and methods as separate debates has served mainly to let proponents pivot from one to the next when any one of them comes under scrutiny. A unified policy approach closes that escape route.

2. The Functional Definition of Aversive Control

Throughout this paper, the term aversive refers to a procedure defined by its function rather than by its label or its appearance. A stimulus is aversive when its delivery decreases a behavior or when its termination reinforces a behavior. The dog acts to avoid, escape, or terminate the stimulus, and the working mechanism of any tool or method that produces this effect is aversive control. This definition is functional, drawn from the experimental analysis of behavior, and applies regardless of the words used to describe the stimulus or the intention of the person delivering it. Whether the device is called a shock collar, an electronic collar, a remote training collar, an electronic stimulation collar, a prong collar, a pinch collar, a choke collar, a slip collar, or by some other vocabulary, and whether the technique is called a correction, a tap, a stim, a pop, a pressure, or by some other vocabulary, the analysis below applies if the procedure operates by the contingency described above. The functional definition is the operative one throughout this paper.

3. The Welfare Evidence Is Convergent

3.1 Controlled Studies of Electronic Collar Use

Cooper, Cracknell, Hardiman, Wright, and Mills (2014) conducted the methodologically strongest controlled comparison of electronic collar training to reward-based training for pet dogs showing recall problems. Dogs trained with electronic collars showed more behavioral stress indicators than dogs trained without. Reward-based training achieved outcomes equal to or better than electronic collar training on the training objectives. The electronic collar conferred no necessity advantage. China, Mills, and Cooper (2020) re-analyzed the same dataset and reported on training efficacy in greater detail. The reward-based training group achieved superior outcomes on multiple measures, including faster latency to sit, fewer hand and lead signals, and faster general obedience progress. The electronic collar group did not show better learning outcomes than the matched non-e-collar control group operated by the same trainers, which means that whatever benefit professional skill brought to the training was not coming from the collar. The trainers in these studies were nominated by the Electronic Collar Manufacturers Association as representing best practice. They did not produce better outcomes with the tools than without them. On the same evidence, the case that e-collars work in expert hands has been tested directly using the trainers the industry itself nominated as representing best practice, and the evidence does not support it.

Schilder and van der Borg (2004) studied protection-trained working dogs in guard-dog training programs (the published abstract describes the sample as German Shepherd dogs) and found that dogs receiving shock collar applications displayed lower body postures, high-pitched yelps, avoidance behaviors, and other behavioral signs of fear and stress on shock application, and that dogs that had received shocks showed more behavioral signs of fear and stress in the training context relative to matched dogs trained without shock. Casey, Naj-Oleari, Campbell, Mendl, and Blackwell (2021) found that dogs whose guardians used two or more aversive methods were significantly more pessimistic on a judgment bias task than dogs trained only with reward-based methods, a direct measurement of negative affective state outside the training context itself.

Deldalle and Gaunet (2014) provided a direct observational comparison of two French training schools, one using primarily negative reinforcement and one using primarily positive reinforcement, with behavioral coding of dogs during training sessions. Dogs in the negative-reinforcement school showed significantly more stress-related behaviors during training and significantly less owner-directed gaze than dogs in the positive-reinforcement school. The reduction in owner-directed gaze is welfare-relevant in its own right because owner-directed gaze is one of the canonical behavioral indicators of secure attachment and comfortable engagement with the handler. The findings establish that within-session welfare differences track training method even when the comparison is between intact, ongoing programs rather than between experimentally manipulated conditions. The Deldalle and Gaunet finding speaks directly to the claim that dogs in aversive-method programs look engaged and content during training: within-session behavioral coding records measurable welfare differences that are not visible in casual observation.

3.2 Broader Research on Aversive Training and Canine Welfare

The welfare research on aversive training extends well beyond electronic collars specifically to cover aversive methods in general. Vieira de Castro and colleagues (2020) videotaped training sessions at seven schools and categorized them as reward-only, mixed, or aversive-based. Dogs in aversive-based schools showed significantly more stress-related behaviors during training, spent more time in tense and low behavioral states, panted more, and had higher post-training cortisol increases than dogs in reward-only schools. Dogs in mixed-method schools showed significantly more stress-related behaviors and panted more than dogs in reward-only schools, although the cortisol difference reached significance only for the aversive-based group. Dogs in aversive-based schools also performed more pessimistically on a cognitive bias task, indicating a more negative affective state extending beyond the training context. Vieira de Castro and colleagues (2019) separately showed that secure attachment patterns toward guardians were more consistently observed in dogs trained at reward-based schools than in dogs trained at aversive-based schools, when assessed through a Strange Situation Procedure. The Strange Situation Procedure is a standardized behavioral assessment, originally developed by Mary Ainsworth in the 1960s and 1970s for the study of human infant attachment to caregivers and subsequently validated for use with dogs, in which the subject is observed across a series of brief scripted episodes that systematically vary the presence of the guardian and a stranger in an unfamiliar room. Behaviors such as proximity-seeking, exploration, distress at separation, and quality of greeting on reunion are coded by trained observers and used to classify the subject's attachment pattern as secure or as one of several insecure patterns. Because the procedure relies on coded observable behavior under standardized conditions, it is methodologically more rigorous than guardian self-report and is now a standard tool in canine attachment research.

Blackwell, Twells, Seawright, and Casey (2008) found that guardians who used positive-punishment-based methods reported more undesirable behaviors in their dogs than guardians who used reward-based methods, with the highest aggression scores reported in dogs whose guardians combined positive reinforcement with positive punishment. Hiby, Rooney, and Bradshaw (2004) similarly found that the number of problem behaviors reported by guardians correlated with the number of training tasks taught using punishment, while obedience ratings correlated only with the number of tasks taught using rewards. Rooney and Cowan (2011), in a home-based observational study, found that dogs of guardians who reported using more physical punishment were less playful with their guardian and interacted less with the experimenter, while dogs of guardians who reported using more rewards performed better on a novel training task. Arhant, Bubna-Littitz, Bartels, Futschik, and Troxler (2010) found that high-frequency aversive training correlated with increased aggression and excitability in dogs, while reward-based training correlated with higher obedience without those side effects.

Herron, Shofer, and Reisner (2009) surveyed one hundred forty pet guardians presenting to the University of Pennsylvania veterinary behavior service. They found that confrontational training techniques produced aggressive responses in a substantial percentage of the dogs on whom they were attempted: hitting or kicking, forty-three percent; growling at the dog, forty-one percent; forcing the release of an item, thirty-nine percent; the alpha roll, thirty-one percent; staring the dog down, thirty percent; the dominance down, twenty-nine percent; grabbing the dog by the jowls or scruff and shaking, twenty-six percent; and choke or pinch collar use, eleven percent. Shock-collar use was infrequent in the Herron sample; remote-activated shock collar use elicited an aggressive response in seven percent of attempts, and bark-activated shock collar use elicited an aggressive response in ten percent. Dogs presenting for aggression to familiar people were significantly more likely to respond aggressively to the alpha roll and to yelling "no" than dogs presenting for other behavior problems. The Herron study is a direct clinical demonstration that confrontational handling is not a benign or low-risk intervention. It is a clinically identified risk factor for guardian-directed aggression, with subsequent population-level multivariable analysis of 3,897 UK dog owners (Casey, Loftus, Bolster, Richards, and Blackwell, 2014) finding adjusted increased odds of family-member aggression in dogs whose guardians used aversive methods.

3.3 The Dissociation Between Behavioral and Physiological Stress Markers

An important methodological point cuts across the welfare literature. Behavioral stress markers (lip licking, yawning, low body posture, displacement behaviors, conflict behaviors, reduced approach, increased vigilance) and physiological stress markers (cortisol, heart rate, heart rate variability) often converge, but not always. Cooper et al. (2014) found significant behavioral stress markers in the electronic collar group, while the larger controlled study showed no significant cortisol difference between the e-collar group and either control group. The preliminary nine-dog phase did show elevated cortisol post-stimulation, but the larger controlled phase did not replicate this clearly. The behavioral findings have sometimes been dismissed by proponents on the basis of the unreplicated cortisol result. That dismissal is selective reading. Cortisol is one measure, and a blunt one. It can be suppressed, lagged, or buffered by context. Validated behavioral markers of stress in canine research are robust and meaningful on their own. A study that finds significant behavioral stress indicators in the electronic collar group has found welfare harm, regardless of whether a single hormone assay reached statistical significance.

This dissociation also applies across aversive modalities. A prong-collared dog may not show elevated cortisol during a short walk, but may show avoidance of the collar being put on, tension during leash handling, conflict behaviors around the handler, and reduced engagement in exploratory behavior. A choke-chained dog may not show elevated cortisol during a single correction, but may show whale eye, lip lick, yawn, and shoulder tension during the correction itself and in anticipation of subsequent corrections. Welfare is assessed through convergence of indicators, not through any single measure.

3.4 Conditioned Emotional Responses and Transfer of Aversiveness

Whenever an aversive event is paired with contextual stimuli, Pavlovian conditioning can produce a conditioned emotional response to those stimuli. A dog repeatedly corrected with a prong collar in the presence of other dogs can develop a conditioned negative association with other dogs. A dog repeatedly shocked in the presence of children can develop a conditioned negative association with children. A dog repeatedly alpha-rolled by the guardian can develop a conditioned negative association with the guardian. None of this is theoretical. Schilder and van der Borg (2004) identified exactly this kind of transfer in their shock collar work, noting that the dogs in their study appeared to associate the aversive event not only with their own behavior but also with the handler, with commands, or with the training context.

This mechanism is particularly dangerous when aversive equipment or aversive methods are used to address reactivity or aggression, because the triggers in those cases are, by definition, stimuli the dog already perceives as threatening. Adding aversive stimulation in the presence of such triggers can deepen the threat association rather than weaken it. That is the most foreseeable failure mode of aversive-based approaches to reactivity and aggression, and it is the failure mode that reward-based counter-conditioning and desensitization protocols are specifically designed to avoid.

3.5 Cumulative Exposure and Welfare Risk

Most aversive training equipment is not worn for a single correction and removed. A prong collar is often worn for every walk, for months or years. A choke chain is often worn continuously during handling. An electronic collar is often worn during daily exercise and off-leash time. Even if individual corrections produced only modest stress responses, the cumulative exposure over months and years is not welfare-neutral. Chronic stress exposure produces documented effects on the hypothalamic-pituitary-adrenal axis, the amygdala, and the prefrontal cortex in mammalian research (McEwen, 2012; Rosenkranz, Venheim, and Padival, 2010; Vyas, Mitra, Shankaranarayana Rao, and Chattarji, 2002; Arnsten, 2009). It produces documented changes in cognitive performance, stress reactivity, and affective state. A policy framework that assesses aversive training equipment only on the basis of a single-session stress response is assessing the wrong exposure window.

3.6 Quick Reference: Convergent Welfare and Training Outcome Evidence

The table below consolidates the principal peer-reviewed studies that anchor the welfare and training-outcome evidence base. Each row identifies the study, summarizes its design and sample, and states the key finding. The strength of the case lies in the agreement across these methods. Controlled experiments, direct observational studies, population-level surveys, affective state and cognitive bias measures, clinical referral data, and real-world containment data all point in the same direction. No single study has to carry the case alone. The agreement across methodologies, populations, countries, and outcome measures is what carries it.

Table 2. Quick-Reference Summary of the Convergent Welfare and Training-Outcome Evidence Base.

Study	Design and Sample	Key Finding	Proponent Argument It Counters
A. Controlled Experimental Studies of Electronic Collar Use			
Cooper, Cracknell, Hardiman, Wright, and Mills (2014)	Randomized controlled study; 63 pet dogs referred for recall problems; three groups (industry-nominated trainers using e-collars; same trainers without e-collars; APDT-affiliated reward-based trainers)	Dogs trained without e-collars achieved equivalent or better training outcomes. E-collar group showed significantly elevated stress-related behaviors during training. No welfare advantage to e-collar use under industry-nominated best-practice conditions.	Counters: "E-collars are necessary for difficult cases" and "skilled professional trainers can use e-collars without welfare cost."
China, Mills, and Cooper (2020)	Controlled comparative study; 63 pet dogs in three groups for recall training (industry-approved e-collar trainers; same trainers without e-collar; reward-based positive reinforcement trainers)	Reward-based trainers achieved equivalent training outcomes more efficiently than e-collar trainers. Positive reinforcement was the most efficient method tested. No necessity advantage for e-collar use.	Counters: "E-collars are faster or more reliable than reward-based methods."
B. Direct Observational Studies			
Schilder and van der Borg (2004)	Behavioral observation study; working dogs (German Shepherds in guard-dog protection training); during and after shock collar training	Shock-collar-trained dogs showed significantly more stress-related behaviors during training. Stress responses persisted in non-training contexts, including in the presence of the trainer or training environment, indicating conditioned emotional response.	Counters: "The dog is fine when the collar is off" and "professional working-dog use is welfare-neutral."
Deldalle and Gaunet (2014)	Direct observational study; two French training schools (one using negative reinforcement, one using positive reinforcement); behavioral coding of dogs during training sessions	Dogs in the negative-reinforcement school showed significantly more stress-related behaviors and significantly less gaze toward the owner during training compared to dogs in the positive-reinforcement school.	Counters: "The dog looks happy and engaged during aversive training."
Rooney and Cowan (2011)	Observational study in home setting; 53 dog-owner pairs; assessment of training methods, dog learning ability, and behavior problems	Punishment-based training methods predicted lower learning ability and more behavior problems. Reward-based training methods predicted better learning outcomes and fewer behavior problems.	Counters: "Punishment teaches the dog faster."

Study	Design and Sample	Key Finding	Proponent Argument It Counters
C. Population-Level Survey Studies			
Hiby, Rooney, and Bradshaw (2004)	Survey of 364 UK dog owners; assessment of training methods, obedience, and behavior problems	Reward-based training methods were associated with higher reported obedience scores. Punishment-based methods were associated with significantly more behavior problems.	Counters: "Punishment is effective for behavior problems." Foundational early population-level study.
Blackwell, Twells, Seawright, and Casey (2008)	Survey of 192 UK dog owners; assessment of training methods and behavior problem occurrence	Owners using punishment-based training reported significantly higher rates of behavior problems including aggression. No association was found between training method and trainability.	Counters: "Punishment is necessary for serious behavior problems."
Arhant, Bubna-Littitz, Bartels, Futschik, and Troxler (2010)	Survey of 1,276 Austrian dog owners; analysis of smaller and larger dogs separately	Frequency of punishment-based training was associated with higher levels of aggression, excitability, and anxiety. Pattern held for both smaller and larger dogs.	Counters: "This only applies to small dogs" or "this only applies to large dogs."
Blackwell, Bolster, Richards, Loftus, and Casey (2012)	Survey of 3,897 UK dog owners (focused on electronic collar use)	Electronic collar users reported lower training success than reward-based trainers for comparable problems. Owner attendance at training classes and owner gender were the strongest predictors of e-collar use, not dog characteristics.	Counters: "I only use e-collars on dogs that need them." User characteristics drive use, not dog characteristics.
Masson, Nigron, and Gaultier (2018b)	Survey of 1,251 French dog owners; e-collar use and acquisition patterns	Among e-collar users, 71.8% used the device without professional advice, 75% had tried two or fewer alternative methods first, and 7% of dogs presented with physical wounds.	Counters: "Professionals use these tools properly." Most use is by lay guardians without guidance.
D. Affective State, Cognitive Bias, and Relationship Studies			
Vieira de Castro, Barrett, de Sousa, and Olsson (2019)	Survey and observational study; assessment of training methods and dog-owner attachment	Aversive-based training was associated with significantly weaker dog-owner attachment compared to reward-based training.	Counters: "Aversive training builds respect or stronger relationship."

Study	Design and Sample	Key Finding	Proponent Argument It Counters
Vieira de Castro, Fuchs, Morello, Pastur, de Sousa, and Olsson (2020)	Multi-measure welfare study; 92 pet dogs from 7 Portuguese training schools (3 reward-based, 4 aversive-based of which 2 mixed and 2 high-aversive)	Dogs in aversive-trained schools showed significantly more stress behaviors during training, significantly higher post-training cortisol, and significantly more pessimistic cognitive bias compared to reward-based-trained dogs. Convergent multi-measure welfare findings.	Counters: "The welfare data are inconclusive" or "there is no clear evidence of harm."
Casey, Naj-Oleari, Campbell, Mendl, and Blackwell (2021)	Cognitive bias test (judgment-bias paradigm); 104 dogs across training method categories	Dogs trained with two or more aversive methods showed significantly more pessimistic cognitive bias than dogs trained with reward-based methods. Cognitive bias is a validated indicator of persistent affective state.	Counters: "The welfare effect is short-term" or "the dog gets over it."
E. Confrontational Handling and Real-World Use Data			
Herron, Shofer, and Reisner (2009)	Clinical referral survey; 140 dog cases at University of Pennsylvania Veterinary Behavior Clinic; assessment of training techniques previously used by guardians	Confrontational handling techniques elicited aggressive responses at rates including: hit or kick the dog (43%), growl at the dog (41%), alpha roll (31%), forced down or dominance down (29%), grab dog by jowls and shake (26%), stare down (30%). Choke or pinch collar use elicited aggressive responses in 11% of cases.	Counters: "Confrontational handling and physical corrections work for aggression." Clinical data show they elicit aggression at high rates.
Starinsky, Lord, and Herron (2017)	Survey of 974 US dog owners; comparison of containment methods and outcomes	Escape rates by containment method: electronic fence 44%, physical fence 23%, tethered 27%. Electronic fences did not produce a clear protective effect on bite or escape outcomes compared to physical fencing.	Counters: "Electronic containment improves safety." Physical fencing outperforms electronic on the available data.

Several conclusions follow from this evidence base in aggregate. First, the welfare signal appears across every methodological approach (experimental, observational, survey, cognitive bias, clinical referral, and real-world containment), which is the structural feature that makes the case convergent rather than cherry-picked. Second, the population studied varies substantially across these works (pet dogs, working dogs, US samples, UK samples, French samples, Austrian samples, Portuguese samples), and the pattern persists across these populations. Third, the design diversity matters because no single methodology is decisive on its own, but the convergence across methodologies eliminates the possibility that the welfare signal is a methodological artifact. The convergent welfare signal does not depend on Cooper alone, or on Vieira de Castro alone, or on Casey alone. It depends on agreement across all of them.

4. Nociception, Mechanical Injury, Aversion, and the Real Welfare Standard

4.1 What Aversive Equipment Actually Engages: Nociception and Threat Circuitry

The welfare case against aversive training equipment does not rest on a claim that the tools cause tissue injury. Modern electronic collar proponents commonly frame their defense around sensation severity rather than tissue damage. The argument runs roughly like this: modern e-collars operate at very low stimulation levels; the sensation is mild, imperceptible, or comparable to a transcutaneous electrical nerve stimulation unit; skilled trainers use the minimum effective setting; what the dog feels is no worse than a tap on the shoulder or a static-electricity shock. Those are claims about sensation severity, not about tissue damage. The counterargument has to meet them on their own terms.

The counterargument is nociception science. Nociceptors are specialized primary afferent neurons (sensory neurons that carry signals from the periphery into the central nervous system) that respond to stimuli capable of signalling actual or potential harm (Dubin and Patapoutian, 2010). They transduce mechanical, thermal, chemical, and electrical stimuli into neural signals that the central nervous system interprets as pain or as a noxious warning event. Critically, nociceptors fire at intensities well below the threshold of actual tissue injury. The system exists to warn the organism away from potentially damaging stimuli before the damage occurs. The International Association for the Study of Pain formally defines pain as an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage (Raja et al., 2020). The phrase "potential tissue damage" appears in the definition precisely because pain is a warning signal, not an injury report.

Electrical stimulation from a training collar does not have to cause tissue damage to activate nociceptors and pain pathways. It simply has to be delivered at an intensity that the peripheral nervous system encodes as noxious. C-fiber and A-delta fiber nociceptors respond to electrical stimulation at intensities well below any injury threshold. Pressure applied to the dog's neck by a prong collar does not have to puncture skin or bruise deep tissue to engage mechanonociceptors. It simply has to exceed the threshold of noxious mechanical input. Compression applied by a choke chain does not have to cause vascular damage or tracheal rupture to engage mechanonociceptors and threat circuitry. It simply has to be delivered with enough force and duration to be noxious. In every case, the biological question is whether the stimulus crosses the nociceptive threshold, not whether it crosses the injury threshold.

The intensity dial on an electronic collar, the sharpness of the prong points, and the degree of neck compression produced by a choke chain are all functionally calibrated to deliver a stimulus the dog experiences as unpleasant enough to change its behavior. Unpleasant enough to change behavior through avoidance, escape, or suppression is, by definition, noxious. A stimulus that is not noxious will not drive avoidance learning. A stimulus that does drive avoidance learning is, by functional and by neurobiological definition, crossing the nociceptive threshold. The argument that aversive equipment operates in a zone above behavioral effectiveness but below nociceptive engagement is not consistent with how peripheral sensory neurons function.

This is why the welfare case does not require a showing of tissue damage. A dog's capacity to experience a stimulus as aversive, to undergo threat conditioning, to develop conditioned emotional responses, to experience stress, and to be worse off for the exposure does not begin at the threshold of visible injury. It begins at the threshold of nociceptive activation and threat-system engagement, which is a much lower threshold and the threshold the tools are built to cross.

Two further considerations strengthen the nociception argument and answer the proponent appeal to low-level or skilled application. The canine sensory anatomy that encounters these stimuli is not equivalent to the human anatomy proponents use in self-test demonstrations. Affolter and Moore (1994) document that canine haired-skin epidermis is approximately three to five cell layers thick, considerably thinner than human epidermis. A delivered electrical or mechanical stimulus that crosses the human nociceptive threshold at one intensity will reach deeper canine tissue at the same delivered energy. Self-testing on human skin systematically underestimates what the canine nervous system receives.

The equipment itself is also not standardized in ways that justify the proponent appeal to a low intensity setting. Lines, van Driel, and Cooper (2013) examined the electrical characteristics of thirteen commercially available electronic training collar models and reported an eighty-seven-fold range in stimulus energy at maximum settings, from 3.3 millijoules to 287 millijoules at a 50 kilohm resistive load representative of canine neck impedance. Within a single collar, the median ratio of maximum to minimum delivered energy across the available strength settings was 81, with individual collars ranging from 8 to 1,114. The authors reported that user-disclosed comparison data such as voltage, pulse parameters, and waveform are not available at the point of sale. Two of the thirteen new collars examined contained manufacturing faults, in one case capable of delivering a maximum-strength impulse regardless of the level chosen via the user dial. The authors concluded that a given strength setting cannot be assumed to deliver a similar stimulus across collar models or brands. From the canine nervous system perspective, what determines whether the nociceptive threshold is crossed is the actual electrical signal at the skin, not the user's intensity setting. The proponent appeal to a low intensity setting, even granting good faith user technique, is not informative about the welfare-relevant question of whether the stimulus is noxious to the dog.

Table 3. *Nociception, Pain Neuroscience, and Sensory Engagement of Aversive Training Equipment.*

Study	Design and Sample	Key Finding	Proponent Argument It Counters
A. Foundational Pain Neuroscience and Definitional Standards			

Study	Design and Sample	Key Finding	Proponent Argument It Counters
Dubin and Patapoutian (2010)	Peer-reviewed review of nociceptor neurobiology in the Journal of Clinical Investigation	Nociceptors are specialized peripheral sensory neurons that detect potentially damaging stimuli at the skin, including extremes of temperature, pressure, chemical, and electrical signals, and transduce these stimuli into neural signals carried to higher brain centers. The system fires below the threshold of actual tissue injury; its biological function is to warn the organism away from potentially harmful events before damage occurs.	Counters: "Modern electronic collars operate at low stimulation levels and do not cause tissue damage; therefore they are welfare-neutral." Nociceptors do not require tissue damage to fire.
Raja, Carr, Cohen, Finnerup, Flor, Gibson, Keefe, Mogil, Ringkamp, Sluka, Song, Stevens, Sullivan, Tutelman, Ushida, and Vader (2020)	Revised International Association for the Study of Pain definition; published in Pain (the leading journal in the field), authored by the multidisciplinary IASP Task Force	Pain is defined as an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage. The phrase "potential tissue damage" is intentional and core to the definition. The IASP also affirms that the definition applies to both human and nonhuman animals.	Counters: "Pain requires tissue damage; absence of damage means absence of pain or welfare cost." The international scientific definition explicitly includes potential damage.
B. Comparative Canine Sensory Anatomy			
Affolter and Moore (1994)	Peer-reviewed review of histologic features of canine and feline skin in Clinics in Dermatology, organized by anatomic region	Canine haired-skin epidermis is approximately three to five cell layers thick, considerably thinner than human epidermis. The cutaneous structures that mediate nociception in dogs are anatomically distinct from human cutaneous anatomy.	Counters: "Self-test demonstrations on human skin (forearm, palm, wrist) accurately represent what the dog feels." Human and canine cutaneous anatomy are not equivalent; the same delivered energy reaches deeper structures more readily in canine skin.
C. Engineering Characteristics of Aversive Training Equipment			

Study	Design and Sample	Key Finding	Proponent Argument It Counters
Lines, van Driel, and Cooper (2013)	Engineering measurement study of electrical characteristics of thirteen commercially available electronic training collar models in the United Kingdom; impedance measurements on twenty-seven dogs; published in the Veterinary Record	Stimulus energy at maximum settings ranged from 3.3 millijoules to 287 millijoules at a 50 kilohm load representative of canine neck impedance, an eighty-seven-fold range across products. Within a single collar, the median maximum-to-minimum energy ratio was 81 (range 8 to 1,114). Two of thirteen new collars contained manufacturing faults; one could deliver a maximum-strength impulse regardless of user setting. Authors concluded that a given strength setting cannot be assumed to deliver a similar stimulus across collar models or brands.	Counters: "A low setting on the user dial corresponds to a mild, predictable, and welfare-neutral stimulus." The relationship between user setting and delivered stimulus is heterogeneous across products and within products, and is not disclosed at the point of sale.

4.2 Documented Physical Effects of Neck-Pressure Equipment (Prong and Choke Collars)

The nociception argument above applies equally to electronic, prong, and choke collars, because all three cross the nociceptive threshold by design. There is, however, a separate evidentiary question that arises specifically for equipment that applies mechanical force to the canine neck. Peer-reviewed veterinary research on prong collars and choke chains documents measurable physical effects on live anatomy during ordinary use, and, in one peer-reviewed case report, catastrophic injury during punitive use. This mechanical-injury evidence is distinct from the nociception argument and applies only to neck-pressure tools. Electronic collars, operated in their standard training modes, do not cause this kind of mechanical injury, and this paper does not claim otherwise. The mechanical-injury argument is a prong-and-choke-collar argument.

Carter, McNally, and Roshier (2020) tested seven collar types and a slip lead on a simulated canine neck model with a pressure sensor beneath the collar. Under force levels representing a firm pull (40 N), a strong pull (70 N), and a jerk (141 N average), collars produced pressures between 83 and 832 kilopascals on the model neck. Collar type and applied force each had significant effects on the pressure delivered to the neck. The authors concluded that no collar tested produced a pressure low enough to mitigate the risk of injury when the dog pulls on the lead (Carter, McNally, and Roshier, 2020). Hunter, Blake, and De Godoy (2019) measured force and pressure on the canine neck during ordinary on-leash walking and found peak contact pressure values reaching 44.61 newtons per square centimeter, with significant differences in how different collar constructions transmit force to the neck. Both studies establish that ordinary collar use transmits substantial pressure to the canine neck. The pressures produced by prong collars, which concentrate force at the prong points, and by choke chains, which apply force to a progressively narrowing circumference, are higher than what flat collars produce under identical pull conditions. This is an engineering reality of how those collars are designed to operate.

Pauli, Bentley, Diehl, and Miller (2006) measured intraocular pressure in fifty-one eyes of twenty-six dogs while the dogs pulled against a collar or a harness. Intraocular pressure rose significantly from baseline when pressure was applied via a collar, but not when equivalent pressure was applied via a harness. The authors concluded that dogs with weak or thin corneas, glaucoma, or any condition where elevated intraocular pressure could be harmful should wear a harness rather than a collar (Pauli et al., 2006). The proposed physiological mechanism is ventral neck pressure compressing the jugular veins and obstructing ocular aqueous outflow. Elevation produced by a flat collar under pull is a published and reproducible finding. Prong and choke collars concentrate or constrict force delivery in ways that flat collars do not, which on the underlying mechanism would be expected to produce equal or greater intraocular pressure elevation. The peer-reviewed literature has not yet directly tested prong or choke collars against the same protocol, and the burden of demonstrating that these tools are mechanically safer than the flat collars Pauli measured lies with the manufacturers and proponents who market them, not with the welfare science community.

Grohmann, Dickomeit, Schmidt, and Kramer (2013) published a detailed peer-reviewed case report in the Journal of Veterinary Behavior describing severe ischemic brain damage in a one-year-old German Shepherd Dog subjected to a punitive training technique in which the guardian lifted the dog off the ground by the choke chain collar. The dog initially appeared normal, then became progressively ataxic (uncoordinated and unable to walk normally), began circling to the left, and showed reduced consciousness. Magnetic resonance imaging showed multifocal T2 and diffusion-weighted changes consistent with severe cerebral edema from ischemia. The injury mechanism was carotid artery compression producing cerebral hypoxia. Because of the severity of the neurological findings, the dog was euthanized. The authors attribute the injury to the punitive hanging technique commonly referred to in the training community as helicoptering or hanging. This is a documented peer-reviewed case of fatal ischemic brain injury directly caused by a choke chain training technique (Grohmann et al., 2013).

The clinical veterinary literature additionally recognizes that repeated collar pressure is a clinical concern for tracheal collapse, and harnesses are commonly recommended in place of collars for dogs diagnosed with tracheal collapse (Rozanski, 2022). Cough induced by collar pressure is a recognized diagnostic feature of the condition in veterinary medicine.

Taken together, the peer-reviewed literature on neck-pressure equipment establishes that prong and choke collars, by their mechanical design, transmit pressure to the canine neck in ranges capable of producing measurable physical consequences, including elevated intraocular pressure under ordinary pull conditions and, under punitive use, documented fatal cerebral ischemia. None of this evidence applies to electronic collars, which operate by a different mechanism. The mechanical-injury case applies specifically to neck-pressure equipment and adds a further layer of evidence, beyond the nociception argument, that prong and choke collars should not remain on the consumer market.

Table 4. *Mechanical Injury and Physiological Effects of Neck-Pressure Equipment.*

Study	Design and Sample	Key Finding	Proponent Argument It Counters
A. Engineering and Pressure Measurement Studies			
Carter, McNally, and Roshier (2020)	Engineering study; seven collar types and one slip lead tested on a simulated canine neck model with embedded pressure sensor; force levels of 40 N (firm pull), 70 N (strong pull), and 141 N (jerk)	Pressures between 83 and 832 kilopascals were produced across collar types. Collar type and applied force each had significant effects on pressure delivered. Authors concluded no collar tested produced a pressure low enough to mitigate the risk of injury when the dog pulls on the lead.	Counters: "Collars only cause harm when used improperly" or "properly fitted collars are mechanically safe."
Hunter, Blake, and De Godoy (2019)	Force and pressure measurement study on canine neck during ordinary on-leash walking; multiple collar constructions compared	Peak contact pressure values reached 44.61 newtons per square centimeter during ordinary walking. Significant differences across collar constructions in how force is transmitted to the neck.	Counters: "Pressure on the neck only matters under abusive use" and "ordinary walking with a collar transmits negligible force."
B. Physiological Effect Studies			
Pauli, Bentley, Diehl, and Miller (2006)	Intraocular pressure measurement; 51 eyes of 26 dogs; pull against collar versus pull against harness with equivalent force	Intraocular pressure rose significantly from baseline when pressure was applied via a collar but not when equivalent pressure was applied via a harness. Authors recommended that dogs with weak or thin corneas, glaucoma, or any condition where elevated intraocular pressure could be harmful should wear a harness rather than a collar.	Counters: "Collars are physiologically benign at typical leash forces." Establishes a clinically significant ocular effect from collar pressure on the neck.
Rozanski (2022) and broader veterinary clinical literature	Clinical veterinary recognition of repeated collar pressure as a contributor to tracheal collapse; harnesses commonly recommended as alternatives for dogs with diagnosed tracheal collapse	Repeated collar pressure is recognized in clinical veterinary practice as a contributor to tracheal compromise. Cough induced by collar pressure is a recognized clinical sign.	Counters: "There is no clinical evidence that collar pressure causes tracheal problems in dogs."
C. Documented Case Report of Catastrophic Injury			

Study	Design and Sample	Key Finding	Proponent Argument It Counters
Grohmann, Dickomeit, Schmidt, and Kramer (2013)	Peer-reviewed case report; one-year-old German Shepherd Dog subjected to a punitive training technique in which the guardian lifted the dog off the ground by the choke chain collar (the helicoptering or hanging technique)	Severe ischemic brain damage from carotid artery compression and cerebral hypoxia; dog showed progressive ataxia, circling, and reduced consciousness. MRI showed multifocal T2 and diffusion-weighted changes consistent with severe cerebral edema from ischemia. The dog was euthanized due to severity of neurological findings.	Counters: "Choke chain training techniques in common use among balanced trainers do not cause serious physical harm." A documented, peer-reviewed fatal injury directly attributable to a choke chain technique.

The mechanical evidence base summarized in Table 4 is independent of the nociception argument set out earlier in this section. Even if a reader sets aside the question of whether prong and choke collars engage nociceptors during ordinary use, the engineering, physiological, and clinical evidence establishes documented physical effects on the canine neck under conditions that fall within the operating range of these tools as marketed and used. The case for prohibition of neck-pressure equipment does not depend on the nociception argument alone.

4.3 Threat Circuitry, Controllability, and Avoidance Learning

The neuroscience evidence summarized in this section draws from rodent, human, and broader mammalian research. This cross-species foundation should be understood carefully. A rodent shuttlebox study or human neuroimaging study is not being presented as a dog-training trial. The basic biological systems at issue, including amygdala-centered threat detection, hypothalamic-pituitary-adrenal stress activation, defensive responding, and operant escape-avoidance learning, are conserved across mammals, including domestic dogs. The dog-specific welfare and training studies reviewed in Sections 3 and 5 provide the direct canine evidence. The mechanism literature summarized here explains why aversive control can produce predictable stress, fear, avoidance, and welfare risks across mammalian learners. The policy argument therefore rests on convergence, not on any single species, model, or study.

The neuroscience literature on fear and threat conditioning is directly relevant to the welfare evaluation of aversive-based training, because it documents how the canine and mammalian brain represents and responds to predicted aversive events. The relevant published findings, on their own scientific terms, do not support a welfare-neutral reading of controllable or predictable aversive stimulation.

LeDoux (2014) integrated decades of fear-circuit research and established that the amygdala and its connected circuits respond to predicted aversive events, encoding threat associations and driving avoidance learning. Limbachia, Morrow, Khibovska, Meyer, Padmala, and Pessoa (2021), in a human functional neuroimaging study comparing controllable to uncontrollable aversive stimulation, found that threat-related neural responding was attenuated under controllable conditions but was not eliminated. Wood, Ver Hoef, and Knight (2014) documented that the amygdala mediates the emotional modulation of threat-elicited responses, situating the amygdala as the key node through which aversive stimulation produces emotional response. Read on their own scientific terms, neither paper concludes that controllable or predictable aversive stimulation is welfare-neutral. Both describe modulation of an aversive response, not elimination of it. The senior authors of these two studies, Dr. Luiz Pessoa (Limbachia et al.) and Dr. David Knight (Wood et al.), have each independently confirmed in written correspondence that their published research cannot be used to support the proposition that predictable, controllable aversive stimulation is neurologically neutral or welfare-benign (L. Pessoa, personal communication, April 10, 2026; D. C. Knight, personal communication, April 17, 2026). The personal communications corroborate, rather than introduce, the reading the published papers already support.

The neurobiological literature on stressor controllability is consistent with this picture. Maier and Watkins (2005), in a review covering decades of stressor controllability research, documented that controllable aversive events produce a different downstream profile than uncontrollable aversive events: controllability attenuates particular sequelae, including the spread of activation that produces learned helplessness. The work does not establish that controllable aversive events are stress-free or welfare-neutral. The animal still recruits stress-system machinery in response to the aversive event.

The contemporary literature on active avoidance reinforces the same conclusion. Cain (2019) describes avoidance as a goal-directed instrumental behavior the brain mounts in contexts where harm is anticipated and a behavioral solution is available. The shift from a fear state to an anxiety state during effective avoidance does not eliminate the underlying threat representation: when the avoidance response is blocked or fails, the fear state returns along with the inflexible defensive reactions characteristic of fear. Sears, Andrade, Samels, Laughlin, Moloney, Wilson, Alwood, Moscarello, and Cain (2026), using a shuttlebox active avoidance paradigm with rats, demonstrated that response-produced feedback cues are transformed during training into safety signals that positively reinforce avoidance. Two implications follow. First, the safety signals identified in this work acquire their value entirely from their inverse relationship with the aversive event. Without the aversive event, no warning stimulus acquires threat value, no feedback cue acquires safety value, and the avoidance response is not reinforced. The aversive contingency is the precondition for the entire learning architecture. Second, the calm and fluent performance of an animal in an effective avoidance state is mediated by an anxiety state under an effective avoidance response, not by the absence of threat representation. When the avoidance response is impaired, the fear state returns.

The empirical literature on canine remote shock collar use under conditions designed to maximize controllability and predictability is consistent with this picture. Christiansen, Bakken, and Braastad (2001) studied 114 hunting dogs across two consecutive years of pasture confrontation testing under controllable, predictable shock-collar contingencies. The authors’ welfare assessment relied largely on owner report and temperament tests and did not detect a significant fear or anxiety effect using those measures. The methodological thinness of the welfare assessment, rather than a clean positive welfare conclusion, is what prevents the data set from supporting a welfare-benign reading of controllable, predictable shock-collar use under field conditions.

Taken together, the neuroscience literature on threat circuitry, controllability, predictability, and active avoidance does not exempt aversive-based training from welfare scrutiny. The modulating factors most often invoked in defense of the equipment (skilled application, predictable timing, controllable contingencies, low intensity) operate on top of an aversive contingency that the dog's nervous system continues to represent as such throughout. The peer-reviewed neuroscience supports the welfare assessment, not the welfare-neutrality argument.

5. The Necessity Claim Fails

5.1 Cooper (2014) and China (2020): No Necessity Advantage Under Best-Practice Conditions

Cooper et al. (2014) and China et al. (2020) matter for the necessity claim because of how they were designed. The electronic collar trainers in both studies were nominated by the Electronic Collar Manufacturers Association as representing the trade's best practice. They used low-level stimulation. They followed manufacturer-recommended protocols. They were evaluated on the problem categories the industry most strongly claims as the e-collar's home territory: recall failure and chasing. Under those conditions, reward-based training produced outcomes equal to or better than electronic collar training, while the electronic collar group showed behavioral welfare indicators that the reward-based group did not.

The implication is decisive. If electronic collars are not necessary in the hands of trained, industry-nominated, best-practice trainers working on the problems that most favor the tool, then they are not necessary at all. The argument for electronic collars has already failed at the professional level. That failure cannot be rescued by pivoting to "use by professionals only" as a policy concession. The studies show that even under professional, industry-nominated, best-practice conditions, the tool produces welfare harm without an outcome benefit.

5.2 No Necessity Advantage for Prong and Choke Collars

The published comparative outcome literature for prong and choke collars against reward-based methods is thinner than the electronic collar literature, but the pattern is consistent. No peer-reviewed study has demonstrated that prong or choke collars produce long-term training outcomes superior to reward-based alternatives in everyday pet training contexts. The welfare literature, including Hiby et al. (2004), Blackwell et al. (2008), Arhant et al. (2010), Rooney and Cowan (2011), and Casey et al. (2021), consistently associates aversive methods with worse rather than better training outcomes and with elevated risk of problem behaviors, including aggression. The absence of any controlled study demonstrating long-term superiority of prong or choke collars over reward-based methods is itself meaningful. The burden of proof for a device whose mechanism engages nociception, and whose use has been associated in the peer-reviewed veterinary literature with measurable physical consequences on the canine neck, lies on the proponent to demonstrate necessity, not on the opponent to refute a never-demonstrated claim.

The veterinary behavior literature is explicit on this point. The AAHA 2015 Canine and Feline Behavior Management Guidelines conclude that the only acceptable training techniques are non-aversive positive techniques, and specifically name electronic shock collars, prong or pinch collars, choke chains, alpha rolls, cattle prods, entrapment, and physical punishment as techniques that can harm or destroy an animal's trust, negatively affect problem-solving ability, and increase anxiety (AAHA, 2015). The AVSAB 2021 position statement is similarly explicit that aversive methods including but not limited to electronic collars, prong collars, choke chains, leash corrections, and other forms of physical or psychological punishment should not be used under any circumstances, and that there is no evidence that aversive training is necessary for dog training or behavior modification (AVSAB, 2021). The BSAVA position statement explicitly names electric shock collars, prong collars, spray collars, choke chains, and electric containment fences as aversive devices that the BSAVA recommends against, and supports legislation banning their sale and use (BSAVA, 2024). The professional consensus has already assessed the necessity claim and rejected it.

5.3 Practice-Based Evidence on Force-Free Alternatives

The claim that aversive equipment is necessary for difficult cases is contradicted by the clinical practice of board-certified veterinary behaviorists, who treat the most severe aggression, reactivity, anxiety, and predatory problems in canine medicine without relying on aversive equipment. The ACVB clinical standard of care is built on behavioral assessment, environmental management, and reward-based behavior modification, integrated with psychiatric medication when clinically indicated. ACVB-board-certified veterinary behaviorists treat the most severe canine aggression, reactivity, anxiety, and predatory cases using this integrated approach, without relying on aversive equipment. If aversive equipment were genuinely necessary for difficult behavior cases, the veterinary specialty that handles those cases would be using it. It is not. The specialty that sees the hardest cases has already determined that reward-based, force-free methods are the appropriate standard of care (ACVB, 2025).

6. Reactivity, Aggression, and Confrontational Handling: Where Aversive Approaches Compound Harm

6.1 Suppression Versus Resolution

Aversive-based training, whether delivered through equipment or through confrontational handling, is especially concerning when it is used with reactivity and aggression, because reactivity and aggression usually occur in the presence of stimuli the dog already perceives as threatening, frustrating, overwhelming, or unsafe. A reactive dog barking and lunging at another dog, a stranger, a child, a bicycle, or an unfamiliar object is not simply disobeying. The dog is already in a state of heightened arousal, threat appraisal, and defensive preparation. Adding an aversive event in that moment, whether electrical stimulation, prong correction, choke correction, leash jerk, alpha roll, or physical correction, lands on top of an already activated emotional and physiological background. The dog can associate the aversive not only with its own behavior but also with whatever else is present, including the trigger itself. This is the conditioned emotional response mechanism described in Section 3.4, applied in the exact circumstance where aversive Pavlovian pairings are most foreseeable and most dangerous.

6.2 The Herron Finding on Confrontational Handling

Herron, Shofer, and Reisner (2009) provide direct clinical evidence on confrontational handling. In their sample of dogs presenting to a university behavior service, confrontational techniques produced aggressive responses in a substantial percentage of cases: hitting or kicking the dog, forty-three percent; the alpha roll, thirty-one percent; the dominance down, twenty-nine percent; grabbing the jowls or scruff and shaking, twenty-six percent. Dogs presenting for aggression toward familiar people were significantly more likely to respond aggressively to the alpha roll and to yelling "no" than dogs presenting for other complaints (Herron, Shofer, and Reisner, 2009). The implication is direct. Confrontational handling is not merely aesthetically uncomfortable or philosophically disfavored. It is a clinically identified independent risk factor for guardian-directed aggression. It is an unsafe intervention on grounds of human safety, not only animal welfare.

This finding directly contradicts the popular claim that confrontational methods are needed to address aggressive dogs. The evidence shows the opposite. Confrontational methods are contraindicated for aggressive dogs and for many dogs without existing aggression, because the methods themselves elicit defensive and guardian-directed aggressive responses in a substantial minority of cases. A method that triggers aggressive responses in a quarter to a half of the dogs on whom it is attempted is not a safe, reasonable, or evidence-based intervention, regardless of how it is rationalized by dominance theory or by celebrity television demonstration.

6.3 The Mechanism of Compounded Harm

Schilder and van der Borg (2004) identified the compound harm mechanism directly in the electronic collar context, noting that dogs in their study appeared to associate shocks not only with their own behavior but also with the handler, commands, or training context. The same mechanism applies to prong collars in the presence of triggers, to choke chains in the presence of triggers, and to confrontational handling performed in the presence of triggers. Under these conditions, the visible reactive or aggressive behavior may decrease while the underlying emotional problem worsens. The dog may bark less, lunge less, or appear more controlled, but the trigger may now become even more predictive of discomfort, conflict, pressure, or threat. Suppression of visible behavior is not the same as resolution of fear, anxiety, frustration, or defensive motivation. A dog that looks more controlled on the outside while carrying a heavier emotional load on the inside can escalate or redirect when the suppression fails, and the failure often occurs at the worst possible moment.

7. Professional and Regulatory Consensus

7.1 Veterinary Behavior Specialists and Veterinary Organizations

On June 14, 2024, the Federation of Veterinarians of Europe, in conjunction with the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal Veterinary Association, unanimously adopted a joint position paper on animal behavior, training methods, and the welfare implications of equipment used to modify behavior. The paper's seventh formal recommendation is a direct and unambiguous call for a complete prohibition on the sale and use of electric pulse training devices, specifically including electric shock collars for dogs (FVE, FECAVA, FEEVA, and WSAVA, 2024). The paper states broadly that equipment and devices that cause pain or discomfort to modify behaviors, such as electric shock collars for dogs and cats, should not be used and should be strongly discouraged by veterinarians and other allied professionals. The signatories represent the veterinary profession across the European Union, across the European companion animal and equine sectors, and globally through WSAVA. This is as unambiguous an international veterinary consensus as exists in this literature. Four major veterinary organizations, representing tens of thousands of veterinarians across multiple continents, formally and unanimously recommend a ban.

The American Veterinary Society of Animal Behavior, in its 2021 position statement reaffirmed in 2025, states explicitly that aversive methods including but not limited to electronic collars, prong collars, choke chains, leash corrections, and other forms of physical or psychological punishment should not be used under any circumstances. AVSAB also states that there is no evidence that aversive training is necessary for dog training or behavior modification (AVSAB, 2021). The AVSAB position matters for policy because proponents often shift, under pressure, from "it works" to "it is necessary." Necessity is a stronger claim than efficacy. A procedure can be effective and still unnecessary. A procedure can suppress behavior and still be inappropriate if less intrusive methods can accomplish the same goal with lower welfare risk.

The American College of Veterinary Behaviorists, the AVMA-recognized specialty organization for board-certified veterinary behaviorists, took its position further in a formal letter to the American Veterinary Medical Association in December 2025. ACVB addressed a public statement by AVMA leadership that seemed to leave room for shock collars as a last-resort alternative to euthanasia. The ACVB response was explicit and emphatic. Electronic collars carry significant risks of fear, aggression, physical pain, and long-term welfare harm. There is no evidence that electronic collars reduce euthanasia risk. Shock collars are not medically necessary, are not evidence-based for preventing euthanasia, and are not aligned with the standard of care for veterinary behavior medicine. ACVB urged that cases involving serious or complex behavior concerns be referred to a board-certified veterinary behaviorist rather than escalated to shock, and aligned its position with AVMA's own published JAVMA guidance on humane training (ACVB, 2025).

The American Animal Hospital Association, representing the certifying and accreditation body for companion animal veterinary practices in the United States, opposes aversive training techniques. The AAHA 2015 Canine and Feline Behavior Management Guidelines, updated in subsequent editions, identify electronic shock collars, prong or pinch collars, choke chains, alpha rolls, dominance downs, cattle prods, lunge whips, starving or withholding food, entrapment, beating, and other forms of physical punishment as training techniques that can harm or destroy an animal's trust in its guardian, negatively affect problem-solving ability, and increase anxiety. The AAHA Guidelines conclude that the only acceptable training techniques are non-aversive, positive techniques that identify and reward desired behaviors (AAHA, 2015).

The European Society of Veterinary Clinical Ethology has similarly argued against the use of electronic collars, concluding after review that there is no evidence of superior efficacy compared to reward-based training and that risks associated with timing errors, lay use, and welfare harm are substantial (Masson et al., 2018a). The British Veterinary Association calls publicly and repeatedly for a complete ban on the sale and use of electronic shock collars for dogs and cats in the United Kingdom, describing electronic shock collars applied even at low intensity as causing physiological and behavioural responses associated with stress, pain, and fear (BVA, 2024). The British Small Animal Veterinary Association opposes aversive training methods broadly, stating explicitly that aversive methods and devices, including electric shock collars, prong collars, spray collars, choke chains, and electric containment fences, have the potential to cause physiological and psychological suffering and that the BSAVA supports legislation banning the sale and use of devices that enable aversive training (BSAVA, 2024). The Australian Veterinary Association holds that collars designed to inflict pain, discomfort, or fear to achieve behavioural change should not be used on dogs, naming electronic and prong collars specifically in that prohibition and adding that prong collars should be illegal in all Australian jurisdictions (AVA, 2022). The Canadian Veterinary Medical Association strongly discourages aversive training techniques and asserts that remote-controlled shock collars are not a necessary method of training or behaviour modification (CVMA, 2021). The New Zealand Veterinary Association's current position states that NZVA does not support the use of electronic behaviour-modifying collars that deliver aversive stimuli for the training or containment of dogs, and recommends that guardians use positive reinforcement methods instead (NZVA, n.d.).

The convergence across veterinary behavior medicine, small animal veterinary practice, international veterinary federations, and national veterinary associations on multiple continents is not selective or niche. It is the established professional consensus.

7.2 Animal Welfare and Humane Organizations

Animal welfare and humane organizations have aligned with the veterinary behavior consensus. In the United States, the American Society for the Prevention of Cruelty to Animals (ASPCA) states explicitly that it is opposed to any training equipment that causes a pet to experience physical discomfort or undue anxiety, and supports training methods that incorporate kindness and respect for both the pet and the guardian, making primary use of lures and rewards such as food, praise, petting, and play (ASPCA, n.d.). Humane World for Animals (formerly the Humane Society of the United States), Best Friends Animal Society, the San Francisco SPCA, and Michigan Humane have each publicly opposed the use of electronic shock collars, prong collars, choke chains, and aversive training methods, and have endorsed reward-based training as the appropriate standard. Best Friends Animal Society has stated publicly that it does not use aversive tools such as pinch collars or electronic collars, and does not endorse their general use, citing the potential for harm when such tools are used by the public (Best Friends Animal Society, 2025). In October 2020, Petco, one of the two largest pet specialty retailers in the United States with more than fifteen hundred locations, ended the retail sale of human- and bark-activated electronic shock collars, citing evidence that shock collars increase fear, anxiety, and stress in dogs, and announced an industry-wide #StopTheShock campaign calling on other retailers, manufacturers, and pet guardians to discontinue the sale and use of these devices (Petco, 2020).

Internationally, the same alignment is even more comprehensive. The Royal Society for the Prevention of Cruelty to Animals, RSPCA Australia, Dogs Trust, the UK Kennel Club, Battersea Dogs and Cats Home, Blue Cross, the People's Dispensary for Sick Animals, the British Columbia Society for the Prevention of Cruelty to Animals, the Scottish Society for the Prevention of Cruelty to Animals, and Cats Protection have each publicly opposed the use of electronic shock collars, prong collars, choke chains, and aversive methods, and have called for legislative bans or for exclusive use of reward-based methods. RSPCA Australia has explicitly stated that it is opposed to the import, sale, or use of equipment used to modify the behaviour of a companion animal that is inhumane, causes injury, pain, suffering, or distress, or can be used to abuse animals, including pronged or pinch collars (RSPCA Australia, n.d.). The British Columbia Society for the Prevention of Cruelty to Animals has stated that it does not support the use of devices and techniques that cause anxiety, fear, distress, pain, or injury, including choke chains, prong collars, and shock collars (BC SPCA, n.d.). In the United Kingdom, the British Veterinary Association, the Kennel Club, Dogs Trust, RSPCA, Battersea, and Blue Cross have acted jointly as a coalition advocating for a complete ban on the sale and use of these devices in England (Dogs Trust, 2024; BVA, 2024).

This is not a fringe coalition. These are the largest and most widely recognized animal welfare organizations in the United States, United Kingdom, Canada, and Australia, joined by a major US pet specialty retailer that decided to remove shock collars from its shelves. When the largest veterinary, welfare, shelter, and retail organizations in the anglophone world each independently reach the same conclusion about aversive training equipment and aversive methods, policy makers should take that convergence as what it is. A field consensus that these tools and methods should be off the market.

7.3 Professional Training and Behavior Organizations

The leading professional training and behavior organizations have adopted the most explicit positions of all. Their standards directly prohibit member use of electronic, prong, and choke collars and of other aversive equipment and methods. The Joint Standards of Practice, as updated in November 2025, are endorsed by the International Association of Animal Behavior Consultants, APDT International, the Karen Pryor Academy, Assistance Dogs International, the Grisha Stewart Academy, Science Matters, Understand Horses, the Victoria Stilwell Academy, and the IAABC Foundation (IAABC, 2025). These standards commit signatory organizations to reward-based methods and explicitly reject the deliberate use of pain, fear, or intimidation in training.

In February 2025, the International Association of Animal Behavior Consultants sunset its previous shock collar addendum and adopted a clarified position explicitly opposing the intentional use of aversive stimuli and specifically requiring members to refrain from using shock in any training or behavior modification context. Members with existing clients using shock devices are expected to help transition those clients away from shock. This is a substantive strengthening of the professional consensus, not a cosmetic update.

The direction of professional trajectory is also telling. Multiple leading education and certification organizations in the dog training field have actively disassociated themselves from broader industry frameworks that continued to permit aversive tools. In particular, the International Association of Animal Behavior Consultants, the Karen Pryor Academy, the Victoria Stilwell Academy for Dog Training and Behavior, the Academy for Dog Trainers (Jean Donaldson), the Pet Professional Guild, and APDT International have each formally distanced themselves from a broader certification framework that continues to permit the use of electronic, prong, and choke collars. Each organization cited alignment with contemporary welfare science and ethical standards as the basis for that departure. The professional consensus is not merely stable. It is tightening. Organizations that permit aversive tools are becoming smaller and more isolated within their own field.

Additional professional organizations that explicitly prohibit aversive equipment or that require reward-based practice of their members include the Pet Professional Guild, Pet Professional Guild Australia, AnimalKind, the Association of Professional Dog Trainers United Kingdom, the Association of Professional Dog Trainers New Zealand, the Canadian Association of Professional Dog Trainers, and the Animal Behaviour and Training Council in the United Kingdom. The Association of Pet Dog Trainers New Zealand has issued a position statement stating that the use of electronic training collars in the context of training is not only unnecessary but a form of cruelty toward dogs, and that shock collars should no longer be an accepted practice in dog training (APDTNZ, 2022). That kind of direct language is now the professional norm among organizations setting standards for modern reward-based training.

7.4 Jurisdictions That Have Enacted Prohibitions on Aversive Training Equipment

Multiple jurisdictions have enacted binding legal restrictions on aversive training equipment, providing regulatory precedent and evidence that bans can be implemented without producing peer-reviewed evidence of increased public safety risk. The pattern across the verified record is consistent. The earliest national prohibitions in this area are now between fifteen and twenty years old, the most recent are continuing to be enacted, and several of the jurisdictions that adopted bans well over a decade ago, including Wales, Switzerland, Austria, and Germany under the case-law interpretation of its Animal Welfare Act, have continued to operate under those prohibitions without any peer-reviewed evidence of harm from prohibition.

In Europe, Wales prohibited the use of electronic collars on dogs and cats under the Animal Welfare (Electronic Collars) (Wales) Regulations 2010 (S.I. 2010/943, W. 97), which came into force on 24 March 2010 under section 12 of the Animal Welfare Act 2006. Switzerland's Animal Protection Ordinance (Tierschutzverordnung) of 23 April 2008, in force 1 September 2008, prohibits training devices delivering electric shocks at Article 76 under the Animal Protection Act of 16 December 2005. Austria's Federal Animal Protection Act of 28 September 2004, in force 1 January 2005, prohibits at §5(2)(3)(a) spike collars, prong collars, and animal training devices using electricity or chemical substances. Germany operates a case-law prohibition: §3 No. 11 of the Animal Welfare Act (Tierschutzgesetz), originally 1972 and consolidated on 18 May 2006, was interpreted by the Federal Administrative Court (Bundesverwaltungsgericht) on 23 February 2006, in case BVerwG 3 C 14.05, to cover electronic training devices on the basis of their design and function, regardless of how an individual user might attempt to apply them.

Denmark's Bekendtgørelse nr. 607 of 25 June 2009 prohibits remote-controlled and automatically operating electric devices, sharp or pointed prong collars, and the advertising and sale of prohibited equipment, under the Animal Welfare Act of 6 June 1991. The Netherlands prohibited equipment delivering electric shocks to dogs through the Besluit of 26 April 2018 amending the Besluit houders van dieren, with the professional exception closed by Staatsblad 2021, 361, and a separate pinch collar ban in force from 1 July 2018. Norway's Animal Welfare Act of 19 June 2009, in force 1 January 2010, supports an implementing regulation prohibiting electric training devices, anti-bark electric collars, invisible electric fences, and prong collars; the predecessor 1974 Act also restricted training collars. Sweden's Animal Welfare Act 2018:1192, in force 1 April 2019, supplemented by the Animal Welfare Ordinance 2019 and Jordbruksverket regulations, prohibits equipment delivering electric shocks. Finland's Animal Welfare Act 693/2023, in force 1 January 2024, was the first Finnish statute to contain an explicit prohibition on electric and spike collars.

France adopted the Arrêté of 19 June 2025, which at Article 14 prohibits electric, prong, and strangling collars (without stopping buckle) in professional contexts; the prohibition applies to educators, breeders, kennels, refuges, and presenters but does not yet cover private use, with the broader Assembly proposition de loi (passed 16 January 2023) still pending in the Senate. Slovenia’s Animal Protection Act (Zakon o zaščiti živali, ZZZiv) of 18 November 1999, with most recent amendment ZZZiv-G in force 1 August 2025, restricts electronic training collars under its general Animal Protection Act framework. Spain’s Ley 7/2023, in force 29 September 2023, prohibits at Article 27(ñ) the use of electric, impulse, punishment, and choke collars, with hunting, herding, and guard dogs exempt and serious-infraction penalties of €10,001 to €50,000 under Article 76. Belgium operates regionally in this area. Belgium-Wallonia adopted the Arrêté du Gouvernement wallon du 15 décembre 2022, in force 1 April 2023 (one-year transition expired 1 April 2024), prohibiting the use of electric collars and other electric-shock accessories for dogs or cats, accessories emitting unpleasant sound signals or acting through chemical substances, choke collars, and prong or spiked collars for dogs, subject to limited derogations (Walloon Government, 2022; Service Public de Wallonie, n.d.). Belgium-Flanders adopted a decree on 13 July 2018 establishing a principle prohibition under the federal Animal Welfare Act of 14 August 1986; a phase-out scenario set in 2021 brings an electric-collar prohibition into force on 1 January 2027, with no exception for military, police, or behaviour therapists, although invisible-fence collars remain permitted. Gibraltar, a British Overseas Territory, enacted the Animals (Amendment) Act 2025 (No. 5 of 2026), gazetted 23 March 2026 in the First Supplement to the Gibraltar Gazette, inserting section 5C into the Animals Act and creating a summary criminal offence covering electronic, choke, and pronged collars on cats and dogs. The Act also makes it an offence to possess a remote-control device while a cat or dog is wearing an electronic collar. The defined term “collar” includes a collar, harness, or any item that may be worn by a cat or dog (Gibraltar, 2026).

In Latin America, Colombia enacted Ley 2480 de 2025 (Ley Kiara), in force in 2025, which at Article 10 prohibits prong and electric collars in regulated pet care services including kennels, training centres, transport, grooming, and spas; private-use cases are addressed under the general anti-cruelty framework of Ley 84 de 1989 as updated by Ley 2455 de 2025 (Ley Ángel) of 18 April 2025. In North America, the Canadian province of Quebec adopted the Règlement on the welfare and safety of domestic companion animals and equines (chapter B-3.1, r. 0.1), which came into force on 10 February 2024 and replaces the earlier Règlement under chapter P-42, r. 10.1; the Quebec Ministry of Agriculture, Fisheries and Food has specifically identified prong-type collars and electric shock collars as collars that violate the requirement that an animal's collar must not interfere with breathing or cause pain or injury.

Australia operates a federal prohibition on the import of pronged collars under the Customs (Prohibited Imports) Regulations 1956 (Commonwealth), with sale and use addressed at the state and territory level. The Australian Capital Territory's Animal Welfare Act 1992 prohibits administering an electric shock to an animal except by a prescribed device; the Animal Welfare Regulation 2001 lists permitted electrical devices, and electronic training collars are not on that list, with the framework further strengthened by the Animal Welfare Legislation Amendment Bill passed 26 September 2019, which also recognised animal sentience. New South Wales prohibits the use, sale, and possession of electric collars at section 16 of the Prevention of Cruelty to Animals Act 1979, with containment systems permitted only inside a fence at least 1.5 metres high. Queensland's Animal Care and Protection Amendment Act 2022, passed 2 December 2022 and in force 12 December 2022, added section 37A to the Animal Care and Protection Act 2001, prohibiting the possession and use of pronged dog collars; electronic collars in Queensland are regulated rather than banned. South Australia's Prevention of Cruelty to Animals Regulations (No. 2) 2000, regulation 8(1)(a), prohibits placing on an animal a collar designed to impart an electric shock. Tasmania's Animal Welfare Act 1993 was amended by Act No. 36 of 2022 to insert section 8(2)(ja), prohibiting pronged collars and similar pinching collars in force from 30 November 2022. Victoria's Prevention of Cruelty to Animals Regulations 2019 prohibit pronged collars at regulation 11, while electronic collars are heavily regulated under regulations 23 to 29A with technical specifications set by Ministerial Approval Notice S 56 published in the Victorian Government Gazette on 6 February 2020.

At the United States state level, several jurisdictions have enacted partial restrictions in the tethering context. Hawaii Revised Statutes §711-1109(1)(j), as amended by Act 182 of the Session Laws of 2021, makes it a criminal offence of cruelty to animals in the second degree to tether or restrain a dog by means of a choke collar, pinch collar, or prong collar unless the dog is engaged in an activity supervised by its owner or an agent of the owner. Rhode Island General Laws §4-13-42, as substantially expanded by H 8095, Chapter 079 of 2024 (in force 12 June 2024), prohibits tethering a dog with a choke-type, head, or prong-type collar, restricts permanent tether area to no less than 113 square feet (or a six-foot trolley radius at ground level), prohibits tethering for more than ten hours in any twenty-four-hour period and between 10:00 p.m. and 6:00 a.m. (with a fifteen-minute exception), and incorporates the Tufts Animal Care and Condition Weather Safety Scale to limit outdoor confinement under adverse conditions. Connecticut General Statutes §22-350a, as amended by Public Act 10-100 with effect 1 October 2010 (and subsequently amended, current version under Public Act 22-59), prohibits tethering a dog by means of a coat hanger, choke collar, prong-type collar, head halter, or any other collar, halter, or device that is not specifically designed or properly fitted for the restraint of the dog. The Animal Legal and Historical Center records that twenty-three states and the District of Columbia have enacted laws regulating the tethering of dogs, with several states explicitly naming choke, prong, or pinch collars as prohibited tethering equipment. These statutes are partial restrictions in the tethering context rather than comprehensive prohibitions on the sale and use of aversive equipment, but they establish that United States state legislatures have already recognised the welfare concerns associated with these tools and have begun legislating accordingly (Animal Legal and Historical Center, 2022). No comprehensive sale-and-use prohibition has yet been enacted at the United States state level. Pending legislative activity in the 2024 to 2026 period, however, reflects active interest across multiple states and across multiple legislative-design models, as discussed below.

Table 1. Comparative Summary of Jurisdictions That Have Enacted Prohibitions or Restrictions on Aversive Dog Training Equipment.

The following table consolidates the jurisdictional record of legislative and regulatory action against aversive dog training equipment, organized by region. The table is not exhaustive but documents the principal jurisdictions cited throughout this paper. Statutory citations and effective dates are drawn from primary sources where available and from the Welsh Government's 2017 review and the FVE, FECAVA, FEEVA, and WSAVA 2024 joint position paper for jurisdictions where primary verification was conducted through those secondary references.

Jurisdiction	Devices Prohibited or Restricted	Statutory Authority or Citation
Europe		
Wales (United Kingdom), 2010	Electronic collars on dogs and cats	Animal Welfare (Electronic Collars) (Wales) Regulations 2010 (S.I. 2010/943, W. 97), made under section 12 of the Animal Welfare Act 2006; in force 24 March 2010.

Jurisdiction	Devices Prohibited or Restricted	Statutory Authority or Citation
Gibraltar (British Overseas Territory), 2026	Electronic, choke, and pronged collars on cats and dogs (also offence to possess a remote-control device while a cat or dog is wearing an electronic collar). “Collar” defined to include a collar, harness, or any item that may be worn by a cat or dog.	Animals (Amendment) Act 2025, enacted as No. 5 of 2026; gazetted 23 March 2026 (First Supplement to the Gibraltar Gazette); inserts section 5C into the Animals Act; summary offence; fine not exceeding level 5 on the standard scale.
Switzerland, 2008	Spike, pinch, and electronic collars; equipment causing pain, fear, or major injury	Animal Protection Ordinance (Tierschutzverordnung, TSchV), Article 76, of 23 April 2008, in force 1 September 2008. Underlying Animal Protection Act (Tierschutzgesetz, TSchG) of 16 December 2005.
Austria, 2004	Spike collars, prong collars, electric and chemical training devices	Federal Animal Protection Act (Tierschutzgesetz), §5(2)(3)(a), BGBl. I 2004/118, of 28 September 2004, in force 1 January 2005.
Germany (case-law)	Electronic and pain-inflicting training devices	Animal Welfare Act (Tierschutzgesetz, TierSchG) §3 No. 11, originally 1972 and consolidated 18 May 2006; interpreted to cover electronic training devices by Federal Administrative Court (Bundesverwaltungsgericht) judgment of 23 February 2006, BVerwG 3 C 14.05.
Denmark, 2009	Remote-controlled or automatically operating electric devices; sharp/pointed prong collars; advertising and sale of prohibited equipment	Bekendtgørelse nr. 607 af 25. juni 2009 om forbud mod brug af visse aggregater, hals¸bånd mv. til dyr, under the Animal Welfare Act (Dyreværnsloven), lov nr. 386 af 6. juni 1991.
Netherlands, 2018	Equipment delivering electric shocks to dogs (initial 2018 ban; professional exception closed 2021); pinch collars (in force 1 July 2018)	Besluit van 26 april 2018 amending Besluit houders van dieren, Article 1.3(h), under the Wet dieren, Article 2.1; further strengthened by Staatsblad 2021, 361.
Norway, 2009	Electric training devices; anti-bark electric collars; invisible electric fences; prong collars	Animal Welfare Act (Lov om dyrevelferd), LOV-2009-06-19-97, of 19 June 2009, in force 1 January 2010, with implementing regulation. Predecessor 1974 Animal Welfare Act also restricted training collars.
Sweden, 2018	Equipment delivering electric shocks; spike collars	Animal Welfare Act (Djurskyddslagen) 2018:1192, in force 1 April 2019, supplemented by the Animal Welfare Ordinance 2019 and Jordbruksverket regulations.

Jurisdiction	Devices Prohibited or Restricted	Statutory Authority or Citation
Finland, 2023	Electric and spike collars (use and sale)	Animal Welfare Act 693/2023, in force 1 January 2024 (1996 Act did not contain explicit prohibition).
France, 2025 (professionals)	Electric, prong, and strangling collars (without stopping buckle), in professional contexts (educators, breeders, kennels, refuges, presenters); private use not yet covered	Arrêté du 19 juin 2025 fixant les règles sanitaires et de protection animale auxquelles doivent satisfaire les activités liées aux animaux de compagnie d'espèces domestiques, Article 14, under Code rural et de la pêche maritime, Articles L. 214-6-1 et seq.
Slovenia, 1999	Electronic training collars (under the general Animal Protection Act framework)	Zakon o zaščiti živali (ZZZiv), of 18 November 1999, published Uradni list RS št. 98/99 of 3 December 1999. Most recent amendment ZZZiv-G in force 1 August 2025.
Spain, 2023	Electric, impulse, punishment, and choke collars (hunting, herding, and guard dogs exempt)	Ley 7/2023, de 28 de marzo, de protección de los derechos y el bienestar de los animales, Article 27(ñ); in force 29 September 2023.
Belgium (Wallonia), 2023	Use of electric collars and other electric-shock accessories for dogs or cats; accessories emitting unpleasant sound signals or acting through chemical substances; choke collars and prong or spiked collars for dogs, subject to limited derogations	Arrêté du Gouvernement wallon du 15 décembre 2022 portant sur l'interdiction ou la restriction de l'utilisation d'accessoires ou de produits causant aux animaux des douleurs, des souffrances ou des lésions évitables; published Moniteur belge, 22 February 2023, Numac 2023040666; in force 1 April 2023; one-year transition expired 1 April 2024.
Belgium (Flanders), 2018 (electric-collar prohibition 2027)	Remote-controlled and bark-activated electric collars, with no exception for military, police, or behaviour therapists; invisible-fence collars remain permitted	Decree of 13 July 2018 establishing principle prohibition under the federal Animal Welfare Act of 14 August 1986; phase-out scenario set 2021; electric-collar prohibition in force 1 January 2027.
Latin America		
Colombia, 2025	Prong and electric collars in pet care services (kennels, training centres, transport, grooming, spas); private-use cases addressed under general anti-cruelty framework	Ley 2480 de 2025 (Ley Kiara), Article 10, in force 2025. General anti-cruelty: Ley 84 de 1989 as updated by Ley 2455 de 2025 (Ley Ángel) of 18 April 2025.
North America (subnational)		

Jurisdiction	Devices Prohibited or Restricted	Statutory Authority or Citation
Quebec, Canada, 2024	Collars likely to cause pain (étrangleur, à pointes, électrique, martingale)	Règlement sur le bien-être et la sécurité des animaux domestiques de compagnie et des équidés, B-3.1, r. 0.1; in force 10 February 2024 (replacing the earlier P-42, r. 10.1).
Australia (federal)		
Australia (Commonwealth)	Import of pronged collars (sale and use are state and territory matters)	Customs (Prohibited Imports) Regulations 1956 (Commonwealth).
Australia (state and territory)		
Australian Capital Territory, 1992 (regulation 2001)	Electric devices on companion animals (e-collars not on prescribed-permitted list); animal sentience also recognised	Animal Welfare Act 1992 (ACT) §13, with prescribed permitted devices listed in Animal Welfare Regulation 2001; further strengthened by Animal Welfare Legislation Amendment Bill, passed 26 September 2019.
New South Wales, 1979 (s. 16 prohibition added 2000)	Use, sale, and possession of electric collars (containment systems permitted only inside a fence at least 1.5 metres high)	Prevention of Cruelty to Animals Act 1979 (NSW), section 16.
Queensland, 2022	Possession and use of pronged dog collars (e-collars regulated, not banned)	Animal Care and Protection Act 2001 (Qld), section 37A, as amended by Animal Care and Protection Amendment Act 2022; passed 2 December 2022, in force 12 December 2022.
South Australia, 2000	Collars designed to impart an electric shock	Prevention of Cruelty to Animals Regulations (No. 2) 2000 (SA), regulation 8(1)(a), under the Animal Welfare Act 1985.
Tasmania, 2022	Pronged collars and similar pinching collars	Animal Welfare Act 1993 (Tas), section 8(2)(ja), inserted by Act No. 36 of 2022; in force 30 November 2022.
Victoria, 2019	Pronged collars (banned, regulation 11); electronic collars heavily regulated under regulations 23 to 29A and Ministerial technical-specifications notice	Prevention of Cruelty to Animals Regulations 2019 (Vic), under the Prevention of Cruelty to Animals Act 1986; technical specifications by Ministerial Approval Notice S 56, Victorian Government Gazette, 6 February 2020.
United States (subnational, partial restrictions in tethering context)		

Jurisdiction	Devices Prohibited or Restricted	Statutory Authority or Citation
Hawaii, 2021	Tethering or restraining a dog by means of choke, pinch, or prong collar (unless engaged in supervised activity)	Hawaii Revised Statutes §711-1109(1)(j), as amended by Act 182, Session Laws 2021.
Rhode Island, 2024 (substantial expansion)	Tethering a dog with a choke-type, head, or prong-type collar; restrictions on tether area, tethering hours, weather exposure, and chain weight	Rhode Island General Laws §4-13-42, as substantially expanded by H 8095, Chapter 079 of 2024 (in force 12 June 2024).
Connecticut, 2010	Tethering a dog by means of a coat hanger, choke collar, prong-type collar, head halter, or any other improperly fitted device	Connecticut General Statutes §22-350a, as amended by Public Act 10-100 (effective 1 October 2010) and subsequently amended, current version under Public Act 22-59.

Pending United States legislation in the 2024 to 2026 period reflects three distinct legislative-design approaches to aversive equipment and aversive methods, beyond the enacted tethering statutes already discussed. The first approach is professional licensing of dog trainers tied to non-aversive standards. New York Assembly Bill A 6985 and Senate Bill S 7723 of the 2025-2026 session would have added Agriculture and Markets Law section 113-a, requiring licensing and educational standards for individuals providing canine training to non-service and non-police dogs, with the statutory language explicitly mandating non-aversive, evidence-based, positive reinforcement techniques as the basis of those standards. The Assembly version had its enacting clause stricken on 20 February 2026; the Senate version remains in the Senate Agriculture Committee. New Jersey has introduced parallel proposals under the same professional-licensing approach. Senate Bill S 3814 of 2024 would have established a Dog Training Licensing Board with an evidence-based humane training code precluding aversive methods (the bill was held by sponsor on 10 February 2025 following committee testimony). Assembly Bills A 4206 and A 4207, both introduced 19 February 2026, would establish, respectively, a Board of Examiners of Dog Trainers under the Dog Trainer Licensing Act, and a New Jersey Dog Trainer Licensure Board under the Dog Training Licensure Act. A 4207 expressly ties licensure standards to professional codes of ethics that incorporate the Least Intrusive, Minimally Aversive Effective Behavior Intervention Policy adopted jointly by APDT, CCPDT, and IAABC. The second approach is restriction of aversive equipment within specified behavior-modification contexts. Massachusetts House Bill H 2342 and Senate Bill S 1459, in the 194th General Court, would require that any dangerous-dog behavior modification plan ordered under the proposed dangerous-dog statute use exclusively evidence-based training techniques that do not result in pain, discomfort, fear, or anxiety, and would explicitly exclude electric, prong, and choke collars from such plans, with required adherence to the principles of the American Veterinary Society of Animal Behavior and the American College of Veterinary Behaviorists. Both bills were reported favorably out of the Joint Committee on Municipalities and Regional Government in 2025 and remain pending. The third approach is enhancement of existing tethering and care statutes. Rhode Island House Bill H 7487 of 2026, introduced 4 February 2026 and referred to the House Judiciary Committee and held for further study, would increase penalties for repeat violations of the existing dog care and tethering statute and would expand enforcement authority to include city and town animal control officers. None of these proposals had been enacted as of the date of this paper. Collectively, however, they establish that United States state-level legislative interest in regulating aversive training equipment, aversive methods, and the dog training profession itself is active across multiple states and across multiple legislative-design models.

The pattern across these jurisdictions is consistent. Where evidence-based welfare considerations have been weighed by national, regional, or state legislative bodies, the consistent direction of policy has been toward restriction or prohibition of aversive training equipment, never toward expansion of access or normalization of use. The United States is, at the federal level, an outlier in this comparative regulatory landscape.

7.5 The Burden of Proof and the Absence of Adverse Outcomes

The burden of proof in a public welfare policy debate lies with the party defending devices whose mechanism engages nociception and threat circuitry, and, in the specific case of neck-pressure equipment, whose use has been associated in peer-reviewed literature with measurable physical effects on the canine neck. That burden has not been met. No controlled study has demonstrated that aversive training equipment produces better training outcomes than reward-based training when the comparison is fair. No controlled study has demonstrated that aversive training equipment is necessary for any training or behavior modification problem that cannot be addressed by reward-based methods. No jurisdiction that has banned these devices, some of which have operated under bans for more than fifteen years, has produced peer-reviewed evidence of increased public safety risk attributable to the prohibition. Wales has banned electronic collars since 2010. Switzerland has banned spike, pinch, and electronic collars for years. Germany and Austria have operated under their respective bans for years. The predicted adverse consequences to canine safety, dog-guardian relationships, or public safety have not been documented in the published literature.

This absence of documented adverse outcome evidence is itself data. When a significant intervention is removed from public access across multiple jurisdictions over more than fifteen years without any observable peer-reviewed evidence of increased public safety risk, the claim that the intervention is necessary for public safety has been empirically tested and has failed.

8. Real-World Use: Why Research Conditions Underestimate Risk

The welfare problems with aversive equipment are intrinsic to the mechanism by which the equipment operates. Aversive control engages nociception and threat circuitry whether the handler is a novice or a master. Skill does not eliminate the aversive event, because the aversive event is what makes the equipment work. The convergent evidence from controlled studies, neuroscience, ethology, and clinical veterinary behavior medicine establishes that no level of handler skill renders an aversive welfare-neutral. The international veterinary, professional, and welfare consensus reflects this. AVSAB, the ACVB, the AAHA, the FVE/WSAVA joint position paper, the BVA, the BSAVA, the AVA, the CVMA, the NZVA, and the leading professional training and behavior organizations all conclude that aversive equipment should not be used at all, by anyone, in any setting. The policy this paper recommends is therefore not a restriction directed at lay users while reserving expert use. It is a comprehensive prohibition on sale, import, and use, applying equally to professional trainers, behavior consultants, hobbyists, and pet guardians.

Real-world use data add a separate and additional welfare concern. Even setting aside the intrinsic mechanism-based welfare argument entirely, the empirical record on how aversive equipment is actually used in the population shows predictable harm at scale. The following subsections document five categories of real-world evidence: who uses these devices and how widespread that use is (Section 8.1), how users acquire and apply the equipment (Section 8.2), what the manufacturing and product-engineering record shows about the devices themselves (Section 8.3), what United States guardians actually believe about these devices (Section 8.4), and the regulatory and informational environment in which sale and use occur (Section 8.5).

8.1 Prevalence and User Profile

Aversive training equipment is widely available in the United States consumer market. Electronic collars, prong collars, choke chains, and remote training systems are sold through national pet specialty retailers (with the notable exception of Petco, which ended retail sale of human and bark-activated electronic shock collars in October 2020), through national online marketplaces, through breed-club networks, and through the personal sales channels of trainers who use these devices in their practice. There is no national US registry of training equipment sales, no required reporting of use or adverse events, and no requirement that purchasers receive any education or assessment before purchase. The published research consequently relies on guardian self-report surveys for prevalence estimates.

Blackwell et al. (2012), in a UK sample, found that owner attendance at training classes and owner gender were the strongest factors distinguishing electronic collar users from owners using reward-based methods, suggesting that source of training advice rather than dog characteristics drove tool selection. A significantly higher proportion of owners in the reward-based comparison group reported training success than those in the e-collar group for comparable recall and chasing problems (Blackwell et al., 2012). The same general profile, in which the source of advice (or absence of advice) is the principal driver of equipment selection, has been documented across multiple jurisdictions and survey populations.

Starinsky, Lord, and Herron (2017) examined the effect of various containment methods on escape rates and biting histories in dogs confined to their guardians' properties. Their findings did not support a clear protective effect of electronic containment systems. Escape rates were nearly twice as high for dogs confined by electronic fence (forty-four percent) as for dogs confined by physical fencing (twenty-three percent), with comparable rates for tethered dogs (twenty-seven percent) (Starinsky et al., 2017). The tool most often cited as necessary for suburban dog containment does not, in the available evidence, rescue the bite or escape profile of the population in which it is used. The user profile for electronic containment systems substantially overlaps with the user profile for remote training collars, and the two product categories are sold by overlapping manufacturer networks.

The user profile for prong collars and choke chains differs in important ways from the electronic collar user profile but converges on similar welfare implications. Prong collar use in the United States is concentrated in (a) sport dog and protection dog communities, (b) certain working-breed enthusiast subcultures, (c) lay guardians purchasing through retail channels for leash-pulling control, and (d) a subset of professional trainers operating in the balanced training tradition. Choke chain use is broader and includes a substantial cohort of guardians who purchased the equipment based on advice from breed clubs, older training manuals, or family tradition rather than contemporary professional behavioral guidance. Across all of these populations, the empirical record from Hiby et al. (2004), Arhant et al. (2010), Casey et al. (2021), and the broader survey literature is consistent: aversive method use correlates with worse rather than better behavioral outcomes, regardless of user sophistication.

8.2 Professional Guidance Patterns and User Behavior

Masson, Nigron, and Gaultier (2018) surveyed 1,251 respondents in France about electronic collar use. They found that 26 percent reported having used an electronic collar at some point. Among those users, 71.8 percent used the collar without professional advice, 75 percent had tried two or fewer other solutions before reaching for the collar, and 7 percent of dogs on which collars had been used presented with physical wounds. The authors concluded that real-life use is far from the idealized conditions of experimental studies and may put dog welfare at higher risk than the scientific literature suggests (Masson et al., 2018b).

These numbers are critical for policy because they describe the actual exposure profile in the population, not the experimental exposure profile in laboratory or controlled-trial conditions. A device used by a lay guardian, without professional supervision, after fewer than three attempts at any alternative method, on a dog whose underlying motivation for the target behavior has not been assessed, in environments where the behavioral context for application of the stimulus is not controlled, is not the same intervention that appears in published efficacy studies. It is a different intervention, with a different exposure profile, applied to a different population. Policy that addresses only the experimentally idealized version of aversive training equipment ignores the version that actually exists in the consumer marketplace.

The same real-world considerations apply to prong collars and choke chains. Consumer-purchased prong collars are commonly fitted incorrectly, used with excessive force, left on unsupervised dogs, and applied by lay handlers with no training in timing or body language. Choke chains are routinely used with force profiles that exceed what any clinician would consider safe. The Herron et al. (2009) data on aggressive responses to choke and pinch collar use in the general pet population, eleven percent, indicates a rate of confrontational outcomes that would be unacceptable for any consumer product with a safer available alternative. The same study documented aggressive responses in the high single to low double digits across the full set of confrontational handling techniques the authors examined, none of which are restricted in the United States consumer marketplace or regulated under any state or federal training standard.

When these guardian-survey patterns are combined with the experimental and observational welfare data summarized in Section 3, the result is convergent. Aversive training equipment, in the population in which it is actually used, produces measurable welfare harm and produces no measurable advantage in training outcome. The pattern holds across country, language, survey methodology, and outcome measure.

8.3 Device Variability and the Absence of Manufacturing Standards

There is also a body of real-world evidence about the devices themselves. Lines, van Driel, and Cooper (2013), in research published in Veterinary Record, examined the electrical characteristics of thirteen commercially available electronic training collar models under realistic conditions, including the electrical impedance of dogs' necks measured separately for wet and dry coats. The study found large differences between e-collar models in delivered energy, peak voltage, number of pulses, and pulse duration. Stimulus energy at the maximum strength setting at a 50 kΩ load ranged from 3.3 millijoules to 287 millijoules across the tested models, an eighty-seven-fold range across products marketed for the same use category (Lines, van Driel, and Cooper, 2013).

That variability has direct welfare implications. A guardian who buys an electronic training collar at maximum setting from one manufacturer is buying a meaningfully different stimulus than a guardian who buys an apparently equivalent product from another manufacturer. Comparison shopping, in any informed-consent sense, is impossible, because the relevant electrical characteristics (voltage, current, pulse width, waveform, and total energy delivery) are not disclosed by manufacturers in any standardized format on packaging, in marketing materials, or at the point of sale. The Electronic Collar Manufacturers Association maintains a voluntary technical standard, but adherence is self-reported and is not enforced by any government regulatory body in the United States.

The United States has no Food and Drug Administration regulation of these devices, no Consumer Product Safety Commission standard for them, no United States Department of Agriculture regulatory framework for their manufacture or sale, and no state-level technical standard. The regulatory vacuum does not extend to other consumer products that deliver electrical stimulation to a body. Therapeutic transcutaneous electrical nerve stimulation devices for human use are regulated as medical devices by the Food and Drug Administration, with required disclosure of pulse parameters, mandatory clinical evidence for marketing claims, and adverse event reporting requirements. Electronic dog training collars, which deliver substantially higher peak voltages than therapeutic TENS units, are subject to no comparable framework. The asymmetry between the regulatory treatment of human-targeted electrical stimulation devices and animal-targeted electrical stimulation devices is hard to defend on the merits.

Prong collars and choke chains are not subject to United States federal product safety regulation either. There is no required tensile strength rating, no required disclosure of intended pressure load, no point-of-sale guidance on fit or use, and no adverse event reporting requirement. The same product category, sold under different brand names, varies in prong sharpness, prong spacing, link weight, and chain composition, with no standardization. A consumer who buys one of these products is buying a different functional intervention than a consumer who buys another. The lack of standardization on the manufacturing side compounds the lack of standardization on the user side documented in Section 8.2.

8.4 United States Public Attitude Data

The third strand of real-world evidence is what United States guardians actually believe about these devices. The most substantial available data point comes from October 2020, when Petco, then the second-largest pet specialty retailer in the United States, ended the retail sale of human and bark-activated electronic shock collars and announced its #StopTheShock campaign. As part of that announcement, Petco disclosed survey data conducted by the market research firm Edelman Intelligence (Petco, 2020). Seventy percent of dog guardians surveyed reported that they believed shock collars had a negative impact on their pet's emotional or mental wellbeing. Sixty-nine percent of dog guardians surveyed considered shock collars a cruel training method. Petco additionally reported separate consumer research finding that fifty-nine percent of pet guardians surveyed would prefer to shock themselves than their dog (Petco, 2020).

These figures, even discounted appropriately for the limitations of corporate-sponsored survey research, document something important. United States guardians are not generally enthusiastic users of aversive electronic equipment. The substantial majority of United States guardians, by Petco's own reported numbers, already perceive these devices as harmful to canine emotional wellbeing and consider them cruel. The constituency that would be inconvenienced by a sale and use prohibition is a minority of the consumer population, not a majority of it.

This is structurally important for policy. Public welfare regulation that prohibits a class of consumer product faces predictable opposition framed in terms of consumer choice and personal liberty. The empirical evidence available from Petco's 2020 corporate disclosure, however, suggests that the consumer choice argument has weak support in the population it claims to represent. A majority of dog guardians, on the basis of the available US survey data, would not lose access to a product they value if aversive electronic training equipment were removed from the consumer marketplace. They would lose access to a product they already perceive as harmful, and that they would, in significant numbers, prefer not to use on their dogs in the first place.

The visible public face of opposition to aversive equipment prohibition in the United States, comprised of certain trainer trade associations, certain breed-specific advocacy groups, and certain manufacturer-funded campaigns, does not represent the modal United States dog guardian. It represents a vocal subset whose professional or commercial interests align with continued availability of these devices. Public welfare policy is properly oriented to the empirically documented preferences of the affected population, not to the loudest organized voices in the policy conversation.

8.5 The Information Environment and the Regulatory Vacuum

Todd (2018) analyzed the barriers to adoption of humane training methods by the general public, identifying lack of knowledge of welfare risks, poor quality of information available to guardians, lack of regulation of dog trainers, and inconsistent positions among professional bodies as factors that maintain the continued use of aversive methods (Todd, 2018). Each of those factors operates with particular force in the United States consumer environment.

The first, lack of knowledge of welfare risks, is structural. Aversive training equipment carries no required warning labels, no point-of-sale disclosure of welfare research, and no regulatory disclosure framework comparable to the warning frameworks applied to other consumer products with documented adverse effects. Guardians purchasing these devices commonly do so on the basis of marketing claims (the device is gentle, the device is humane, the device is safe at low settings) that are inconsistent with the published welfare and neuroscience literature.

The second, the quality of available information, is inconsistent across sources and across professional channels. The veterinary, behavioral, and welfare-organization consensus opposing aversive equipment (Section 7) is not communicated to guardians at the point of purchase, in retail catalogs, or by manufacturers. Internet search results for training equipment commonly surface industry-funded sources that contradict the peer-reviewed welfare literature. Trainer marketing materials commonly endorse aversive equipment notwithstanding the contrary professional and welfare consensus.

The third is the regulatory vacuum around dog trainers themselves. Commercial dog training is essentially unregulated worldwide. Germany is the closest exception: under §11 of the Animal Welfare Act (Tierschutzgesetz), anyone who commercially trains dogs for third parties must obtain a permit from the local veterinary office demonstrating animal-related qualifications. The §11 permit applies to a range of animal businesses (dog training, grooming, daycare, breeding), and the granting decision is administrative rather than examination-based. It is a permit requirement, not a licensure framework comparable to those that govern veterinarians, mental health counselors, and social workers. No other developed country, including the United States, has even that level of regulatory gatekeeping for the canine training profession. Anyone may operate as a dog trainer in the United States without any required education, examination, supervised practice, or continuing education requirement. There is no state regulatory body to which guardians can complain when a trainer's methods cause harm. There is no professional malpractice framework comparable to the one operative in veterinary medicine, mental health counseling, or social work. New York Senate Bill S 7723 and Assembly Bill A 6985 (2025-2026 session) represent one of several serious United States state-level attempts to address this regulatory vacuum; parallel licensure proposals in New Jersey (Senate Bill S 3814 of 2024 and Assembly Bills A 4206 and A 4207 of 2026) are documented in Section 7.4. Until comparable measures pass, the United States consumer market for canine training and behavior modification operates without the professional gatekeeping that protects consumers in welfare-affecting professions generally.

Fourth, inconsistent positions among professional bodies have been substantially resolved in the past decade. The convergence documented in Section 7 (AVSAB, ACVB, AAHA, FVE/WSAVA, BVA, BSAVA, AVA, CVMA, NZVA, ESVCE, and the major welfare and training organizations) leaves no serious mainstream professional disagreement on the welfare implications of aversive equipment. The remaining inconsistency lies in the gap between what the veterinary and behavioral consensus has concluded and what consumers encounter at the retail level. This gap is structurally maintained by the absence of a regulatory framework. Closing it requires policy action.

The implication for policy is direct. Consumer-level availability of aversive training equipment, in a market where lay guardians have limited access to high-quality behavioral information, predictably produces welfare harm even before anyone considers the intrinsic properties of the devices. A prohibition on the sale and use of aversive training equipment is therefore a consumer protection measure, not just an animal welfare measure. It removes from the consumer marketplace a class of product whose advertised claims are not supported by the peer-reviewed evidence, whose adverse effects are documented but not disclosed, and whose appropriate use requires professional gatekeeping that does not currently exist in the United States and is not on the visible legislative horizon at the federal level.

Policy must be designed for the actual properties of the equipment and the actual conditions of its use. The intrinsic argument is that aversive equipment works by aversive control, which engages nociception and threat circuitry regardless of who is operating the device. The empirical argument is that real-world use compounds that intrinsic welfare cost through inconsistent timing, poor fit, prolonged wear, use in aggression and anxiety cases, use around triggers, and use by people without education in behavior analysis or canine body language. Both arguments lead to the same conclusion. The right policy response is a comprehensive prohibition on the sale, import, and use of these devices, not a tiered system that imagines safe expert use on one side and unsafe lay use on the other. The international veterinary, professional, and welfare consensus has already rejected the tiered framing. The United States should align with that consensus.

10. Recommended United States Policy

The recommended policy has two complementary components. The first is prohibition of aversive training equipment, addressed in Section 10.1. The prohibition is delivered through legislation regulating sale, import, and use, modeled on the legislative architecture already in place in Wales, Switzerland, Germany, France, and the other jurisdictions cataloged in Section 7.4. The second is the adoption of a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework, addressed in Sections 10.2 and 10.3 and enforced through state licensure of trainers and behavior consultants, addressed in Section 10.5. Component one removes aversive equipment from the consumer marketplace. Component two ensures that commercial training and behavior modification services delivered to the public are conducted using non-aversive methods, including the regulation of confrontational handling techniques applied without equipment. Both components are necessary. Equipment prohibition without standards of practice leaves confrontational handling techniques unaddressed. Standards of practice without equipment prohibition leaves the equipment available on the consumer market. Together, the two components accomplish what the international veterinary, professional, and welfare consensus has called for: the comprehensive removal of aversive control as the basis of canine training and behavior modification in the United States.

10.1 Equipment Prohibition: Scope

A United States policy should prohibit the sale, import, and use of aversive training equipment for dogs. This includes, without limitation, electronic collars of all types (remote-controlled, bark-activated, and electronic containment), prong or pinch collars of all designs, choke chains, choke collars, and slip collars designed to constrict the neck under load, and spray collars in the citronella and scentless-air variants (whether remote-controlled or bark-activated). The prohibition should cover equipment used for training, behavior modification, punishment, negative reinforcement, containment, barking suppression, and behavior interruption. Ultrasonic and audible-tone bark-and-behavior-modification devices raise welfare concerns of their own and are addressed under the professional standards of practice in Section 10.2 rather than under this equipment-prohibition framework. Properly fitted flat collars, body harnesses (front-clip and back-clip), and head collars (such as the Halti and Gentle Leader) are not aversive equipment and are not within the scope of this prohibition. Limited-slip martingale collars whose tightening section is configured so that the collar cannot constrict to a circumference smaller than the resting circumference of the dog's neck are not aversive equipment and are not within the scope of this prohibition.

10.2 Force-Free Standards of Practice and the Hierarchy of Dog Needs as a Leading Reference Framework

The second component of the recommended policy is a substantive force-free standard of practice for commercial dog training and behavior modification. The model state standard recommended here is built on objective, legislatively stated principles that operationalize the convergent welfare evidence catalogued in Sections 3 through 7 of this paper. The principles are: that reward-based methods are the basis of permitted training and behavior modification practice; that practice is welfare-centered, attentive to the dog's biological, emotional, social, and cognitive needs; that positive punishment is excluded from permitted practice; that negative reinforcement is excluded from permitted practice; that engineered extinction is excluded from permitted practice where it creates distress or welfare risk; that aversive control procedures, including those whose mechanism of action engages nociception, threat circuitry, fear, intimidation, or escape-avoidance learning, are excluded from permitted practice; that permitted practice is aligned with the consensus position of veterinary behavior medicine and animal welfare science as documented in the international veterinary position statements catalogued in Section 7; and that permitted practice uses humane, non-aversive behavior modification techniques, including management, antecedent modification, positive reinforcement, differential reinforcement (including DRI, DRA, DRO, and DRL), classical conditioning and counterconditioning, desensitization, the Premack Principle, and social learning (Bandura, 1965, 1977, 1986). These principles are stated directly in the model state standard and do not depend for their legal force on any externally controlled framework. The model state standard does not delegate regulatory authority to any private framework, trademark, book, or any future revision of any external publication. Compliance with the state standard is determined by reference to the principles set forth above, as they are written into the licensing statute and the implementing regulations of the licensure framework recommended in Section 10.5. Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) provides a leading articulation of these principles in the contemporary force-free training and behavior modification literature, and state legislatures and regulatory bodies are encouraged to consult it as a reference framework. The state standard, however, is the substantive principles written into the licensing statute. The HDN informs and articulates those principles; it does not, in this recommendation, function as the legal standard itself.

The HDN organizes care across five tiers of needs, addressed in sequence: biological needs (nutrition, water, exercise, shelter, sleep, gentle grooming, gentle veterinary care, freedom from pain); emotional needs (physical and emotional safety, trust, love, benevolent leadership, secure attachment); social needs (two-way non-threatening interaction with humans and conspecifics, age-appropriate socialization); cognitive needs (choice, problem-solving, novelty, opportunity for normal dog behaviors); and force-free training needs, addressed only after the preceding tiers have been assessed and supported.

The HDN's Best Force-Free Practices, set forth in Chapter 5 of the Handbook, comprise the eight permitted methods within the HDN framework: management, antecedent modification, positive reinforcement, differential reinforcement (including DRI, DRA, DRO, and DRL), classical and counterconditioning, desensitization, the Premack Principle, and social learning (Bandura, 1965, 1977, 1986). Per Michaels, these methods may be used in any order or combination (“Choose Any or All Methods”); they are non-hierarchical among themselves. The HDN specifically excludes positive punishment, negative reinforcement, negative punishment, and engineered extinction. The substantive principles set forth in the model state standard above similarly exclude these procedures and the tools whose mechanism of action depends on them.

The Hierarchy of Dog Needs® is a standards-of-practice framework, and that distinction matters for understanding why it is an appropriate leading articulation for a model state standard rather than other widely cited frameworks in the field. Standards of practice, learning-theory frameworks, and procedural-priority principles are three different categories of document, and they do different work.

A learning-theory framework catalogs and ranks the full operant landscape because that is what learning theory is. Susan Friedman's Humane Hierarchy is a procedurally rigorous ladder that orders positive reinforcement first, then negative reinforcement, then extinction and negative punishment, then positive punishment (Friedman, 2009). The framework is methodologically sound as a description of behavior analysis, and it serves a useful pedagogical purpose for behavior analysts who need to understand the full operant landscape across applied contexts, including zoo enrichment, laboratory animal welfare, and applied behavior analysis with humans. It is a teaching framework. It is not, and was not designed to be, a standards-of-practice framework for pet dog training.

A procedural-priority principle, such as LIMA (Least Intrusive, Minimally Aversive), orders interventions from least to most intrusive but does not categorically exclude aversive procedures (Lindsay, 2005). LIMA allows aversive procedures at the bottom of the priority hierarchy under an "exhaust less intrusive alternatives first" principle. That is consistent with a procedural ranking framework, but it leaves the door open to procedures whose welfare costs the convergent science of the past two decades has clearly documented. A practitioner working under LIMA can, in principle, justify aversive equipment after exhausting other options. The convergent welfare science, however, does not support that conclusion in any application within commercial canine training and behavior modification.

A standards-of-practice framework operates differently. It is a normative document about what working practitioners should and should not do with the animals in their care, and it draws its lines from the welfare evidence rather than from the methodological inventory. The Hierarchy of Dog Needs® is built as a standards-of-practice framework. Its exclusion of positive punishment, negative reinforcement, negative punishment, and engineered extinction is not a methodological oversight or a simplification of learning theory. It is a deliberate operationalization of the welfare conclusion that those procedures, regardless of their position in any procedural priority hierarchy, are not appropriate in commercial canine training and behavior modification given the convergent welfare evidence catalogued in Sections 3 through 7 of this paper.

This is also the structure of the international veterinary consensus. The 2024 joint position paper of the Federation of Veterinarians of Europe, the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal

Veterinary Association does not call for positive punishment to be used last (FVE, FECAVA, FEEVA, and WSAVA, 2024). It states that equipment causing pain or discomfort should not be used. That is a standards-of-practice claim, not a procedural-priority claim. It categorically excludes the equipment, which categorically excludes the procedures that depend on the equipment. The Hierarchy of Dog Needs® does the same thing on the procedural side.

The recommendation that the model state standard draw on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework is therefore not a claim that other force-free frameworks are deficient. Friedman's Humane Hierarchy is doing what a learning-theory framework is supposed to do. LIMA is doing what a procedural-priority principle is supposed to do. The Hierarchy of Dog Needs® is doing what a standards-of-practice framework is supposed to do, which is the category of document the policy purpose at hand calls for. The model state standard recommended here is built on this principle. It draws on the leading articulation of force-free standards of practice in the contemporary literature without delegating regulatory authority to that or any other external framework.

The substantive principles set forth above are aligned with the position statements of the American Veterinary Society of Animal Behavior, the American College of Veterinary Behaviorists, the American Animal Hospital Association, the Federation of Veterinarians of Europe and the World Small Animal Veterinary Association joint position paper, the British Veterinary Association, the British Small Animal Veterinary Association, the Australian Veterinary Association, the Canadian Veterinary Medical Association, and the New Zealand Veterinary Association, and with the standards of practice adopted by the International Association of Animal Behavior Consultants, the Karen Pryor Academy, the Victoria Stilwell Academy, the Academy for Dog Trainers, the Pet Professional Guild, and APDT International. The international veterinary, welfare, and professional consensus has converged on the methodological principles set forth above. The model state standard recommended here operationalizes that consensus through a citable, statutorily defined framework with a clear principles-based exclusion of aversive control procedures.

Equipment prohibition (Section 10.1) addresses one mechanism of aversive practice. The model state standard of practice addresses the broader category of aversive interventions, including confrontational handling techniques applied without equipment, which are addressed specifically in Section 10.3.

10.3 Confrontational Handling Techniques and Standards of Practice

The recommended policy reaches not only aversive equipment but also aversive techniques applied without equipment. Confrontational handling techniques operate by positive punishment or negative reinforcement, both of which are excluded under the substantive force-free standards of practice set forth in Section 10.2. Confrontational handling techniques include, without limitation, the alpha roll (forcibly rolling a dog onto its back and pinning it), the dominance down (forcing a dog into a prolonged down position as punishment), the scruff shake (grabbing the loose skin at the nape of the dog's neck and shaking the dog), hanging or helicoptering (lifting a dog off the ground by a leash or collar), hitting or kicking the dog, forced retrieves involving ear pinches or toe pinches, finger jabs to the neck or ribs, and intentional yelling at the dog as an aversive intervention. These techniques operate by the same mechanism as aversive equipment. They engage nociception and threat circuitry. They produce avoidance learning rather than resolution of the underlying behavior. The clinical evidence summarized in Section 6.2 (the Herron findings) documents that confrontational handling techniques produce aggressive responses in a substantial percentage of dogs on whom they are attempted, including dogs who present without prior aggression history.

Aversive techniques applied without equipment cannot be reached through equipment prohibition, because no equipment is involved. They are reached, under the framework recommended by this paper, through the second component of the policy: state licensure of commercial dog training and behavior modification, with the substantive force-free standards of practice set forth in Section 10.2, which draw on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading articulation, as the required standard of practice. Under that framework, a licensed trainer or behavior consultant who applies confrontational handling techniques to a client's dog would be in violation of professional standards of practice, with the same disciplinary consequences (license suspension, license revocation, exclusion from the regulated profession) that apply to a veterinarian, mental health counselor, or social worker who practices outside the standards of their profession.

The boundary between confrontational handling as a deliberate aversive intervention and ordinary verbal communication or supervisory contact with a dog is the same boundary that veterinary medicine and human behavioral health already manage. A frustrated tone of voice in a stressful moment is not aversive practice. A startled exclamation when a dog runs into the street is not aversive practice. A physical restraint applied during a medical emergency to prevent a dog from injuring itself or others is not aversive practice. The standard reaches techniques deliberately employed as aversive interventions in the course of training or behavior modification, performed in the commercial context where licensure applies. The framework is not novel. It is the standard scope-of-practice mechanism by which welfare-affecting professions are regulated in the United States.

10.4 Rationale

Six considerations support the recommendation.

The first is mechanism. Aversive equipment and aversive methods produce behavior change, when they work at all, through punishment or negative reinforcement, suppressing behavior or reinforcing escape and avoidance. That mechanism is not vocabulary-dependent. It is definitional in behavior analysis.

The second is welfare risk, supported by convergent evidence. Experimental, observational, survey, cognitive bias, attachment, and neurobiological research consistently associates aversive-based training with stress-related behavior, conflict behaviors, suppressed body language, pessimistic affective bias, and conditioned emotional responses. For neck-pressure equipment specifically (prong and choke collars), peer-reviewed veterinary research adds elevated intraocular pressure during ordinary pulling (Pauli et al., 2006), neck pressures in injury-relevant ranges (Carter et al., 2020; Hunter et al., 2019), and, in the peer-reviewed case report of Grohmann et al. (2013), fatal cerebral ischemia following a punitive choke-chain hanging technique.

The third is the failure of the necessity claim. Cooper et al. (2014) and China et al. (2020) do not support the necessity claim for electronic collars. No peer-reviewed controlled study has demonstrated necessity for prong or choke collars. Herron et al. (2009) identifies confrontational handling as a clinical risk factor for guardian-directed aggression, not a safe training modality.

The fourth is the empirical record on real-world use. Masson et al. (2018b), Blackwell et al. (2012), and Herron et al. (2009) show that most users of aversive equipment and aversive methods operate without professional guidance, and that guardian-reported success is not higher for aversive-based approaches. That is an additional layer of welfare concern, not the foundation of the case. The foundation of the case is that aversive control engages nociception and threat circuitry regardless of who is operating the device, which is why the international veterinary and professional consensus calls for these tools to be removed from use entirely rather than restricted to expert hands.

The fifth is the existence of less intrusive alternatives. The Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022), endorsed by veterinary behavior organizations and aligned with the international professional consensus, addresses the full range of problems proponents claim as the strongest applications of aversive tools: recall, predatory chasing, reactivity, aggression, and barking. The ethical standard in behavior change intervention, applied widely in human behavior analysis and in veterinary medicine, is the least intrusive effective method. Aversive equipment and aversive methods are not the least intrusive effective option for any presenting problem in canine training or behavior modification, in anyone's hands, in any setting. The international veterinary, professional, and welfare consensus has reached this conclusion on the same evidence presented in this paper. The conclusion is not that aversive equipment is acceptable when applied skillfully and unacceptable otherwise. The conclusion is that aversive equipment is not the appropriate tool, regardless of who is holding it, because less intrusive effective alternatives exist.

The sixth is international veterinary consensus, which has already reached the policy conclusion. The June 2024 joint position paper unanimously adopted by the Federation of Veterinarians of Europe, the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal Veterinary Association formally calls for a complete ban on the sale and use of electric pulse training devices including electric shock collars, and broadly states that equipment causing pain or discomfort should not be used (FVE, FECAVA, FEEVA, and WSAVA, 2024). The United States can either align with this international veterinary consensus or remain an outlier. The evidence does not support the outlier position. Linda Michaels' Hierarchy of Dog Needs® (Michaels, 2022) provides a leading articulation of the substantive force-free standards through which the United States can operationalize that international consensus as a model state standard of practice, adoptable across multiple jurisdictions.

10.5 Supporting Infrastructure

A United States ban should be paired with public education, professional standards for trainers, and accessible humane training alternatives. Legislation should be accompanied by funding or incentives for reward-based public education, veterinary referral pathways, accessible behavior consultation resources, and support for pet guardians dealing with serious behavior problems such as aggression, predatory chasing, separation-related issues, and reactivity. A prohibition without supporting infrastructure is less effective than a prohibition embedded in a broader public policy of humane companion animal care.

Trainer regulation is not within the traditional scope of federal companion animal legislation in the United States, but the states and professional bodies can support this infrastructure with certification requirements aligned with the force-free standards of practice, continuing education standards, and public information resources. The absence of dog trainer regulation has been identified, including by Todd (2018), as a structural barrier to widespread adoption of humane methods. Any serious welfare policy benefits from closing that gap.

States should adopt licensure requirements for any person who provides dog training or behavior modification services for pet dogs on a commercial, fee-for-service basis. Licensure should require, at minimum, demonstrated competency through certification by an independent credentialing organization whose standards align with the substantive force-free standards of practice set forth in Section 10.2, including reward-based methods, welfare-centered methodology, and exclusion of positive punishment, negative reinforcement, engineered extinction where it creates distress or welfare risk, and aversive control procedures generally; documented continuing education in evidence-based and science-based behavior practice, with periodic renewal requirements; adherence to a published professional code of conduct; and accountability through a state regulatory board with authority to investigate complaints and impose disciplinary action, including license suspension or revocation. Existing credentialing bodies may qualify under this framework if their published standards align with the substantive state standard, including force-free practice, welfare-centered methodology, and exclusion of aversive control methods, regardless of whether their internal documentation references the Hierarchy of Dog Needs® or any other particular external framework by name. The qualifying test is alignment with the substantive principles set forth in Section 10.2, not affiliation with any specific external publication. The current US baseline, under which anyone can advertise as a dog trainer or behavior consultant with no education, no certification, no examination, no continuing education, and no professional accountability, is not consistent with the welfare interests of dogs or with the consumer-protection interests of the public. Comparable licensure requirements already exist for veterinarians, veterinary technicians, mental health counselors, social workers, and many other professions whose practice carries welfare or public-safety implications. Dog training and behavior modification, which directly affect canine welfare, the human-animal bond, and the public safety profile of dogs in the community, warrant the same regulatory seriousness.

Licensure bills are already under active legislative consideration in multiple United States jurisdictions, as documented in Section 7.4. New York Assembly Bill A 6985 and Senate Bill S 7723 of the 2025-2026 session would require licensing and educational standards for canine trainers under non-aversive, evidence-based, positive reinforcement principles. New Jersey Assembly Bill A 4206 (Dog Trainer Licensing Act) and Assembly Bill A 4207 (Dog Training Licensure Act), both introduced 19 February 2026, would establish state licensure boards and tie licensure standards to professional codes of ethics that incorporate the Least Intrusive, Minimally Aversive Effective Behavior Intervention Policy. New Jersey's earlier Senate Bill S 3814 of 2024 would have established a Dog Training Licensing Board with an evidence-based humane training code precluding aversive methods. The pattern across these proposals reflects an emerging United States legislative interest in implementing the licensure framework recommended here, even though no comprehensive licensure statute had been enacted at the United States state level as of the date of this paper.

11. Conclusion

Aversive training equipment and aversive training methods change behavior. That is not the disputed point. The questions that actually matter for legislative purposes are how they change behavior, what welfare risks come with that mechanism, whether they are necessary, and whether public access to such devices and methods is justified when less intrusive alternatives exist. This paper has answered each of those questions using convergent evidence from multiple independent scientific disciplines, peer-reviewed veterinary research on the physical effects of neck-pressure equipment, clinical behavior medicine, international veterinary welfare consensus, and established regulatory practice in jurisdictions that have already acted.

The mechanism is aversive control. When aversive equipment or an aversive handling technique reduces a behavior, the equipment or technique is functioning as positive punishment. When a behavior increases because the dog can escape, avoid, delay, or prevent the aversive event, the equipment or technique is functioning as negative reinforcement. In both cases, the stimulus has to function as an aversive event for the dog. That requirement is not eliminated by a softer vocabulary, by a lower intensity setting, or by claims that skilled application removes the welfare cost. The mechanism is what it is, and what follows from the mechanism follows. This is not a matter of preference or ideology. It follows from the definitions of the procedures by which these tools and methods operate.

The necessity claim fails. The peer-reviewed evidence does not support the claim that aversive training equipment is necessary for effective dog training or behavior modification. Cooper and colleagues (2014) and China, Mills, and Cooper (2020) ran controlled studies and found no necessity advantage for electronic collars. Comparative studies on prong and choke collars in everyday training contexts have likewise failed to produce evidence of necessity. Herron, Shofer, and Reisner (2009) document confrontational handling as a clinical risk factor for guardian-directed aggression, not a safe training modality. The welfare case against electronic collars does not rest on a claim that they cause tissue damage. The case rests on what the equipment must do to function: nociceptors and threat circuitry respond to stimuli well below the threshold of actual injury, and a stimulus that is behaviorally effective because the dog works to avoid, escape, or terminate it is, by that fact alone, crossing nociceptive and threat-system thresholds. The mechanical-injury literature on prong and choke collars adds a second layer of welfare concern beyond the nociception argument for that category of tools, with peer-reviewed veterinary research establishing measurable physical effects (Pauli et al., 2006; Carter et al., 2020; Hunter et al., 2019; Grohmann et al., 2013).

The professional consensus is documented, convergent, and international. In June 2024, the Federation of Veterinarians of Europe, the Federation of European Companion Animal Veterinary Associations, the Federation of European Equine Veterinary Associations, and the World Small Animal Veterinary

Association unanimously adopted a joint position paper formally calling for a complete ban on the sale and use of electric pulse training devices including electric shock collars for dogs. The American Veterinary Society of Animal Behavior, the American College of Veterinary Behaviorists, the American Animal Hospital Association, the British Veterinary Association, the British Small Animal Veterinary Association, the Australian Veterinary Association, the Canadian Veterinary Medical Association, the New Zealand Veterinary Association, and the European Society of Veterinary Clinical Ethology have each independently reached the same position, as have the largest animal welfare organizations in the English-speaking world and the leading professional training and behavior organizations. Multiple jurisdictions have enacted legislative bans, in some cases for more than fifteen years, without producing peer-reviewed evidence of increased public safety risk attributable to the prohibition.

The real-world use data reinforce the case. Aversive equipment is predominantly purchased and operated by lay guardians without professional supervision, applied after few or no alternative methods have been attempted, and associated with physical wounds in a measurable percentage of cases (Masson et al., 2018b). The devices themselves vary by nearly two orders of magnitude in delivered electrical energy across products marketed for the same use category, with no manufacturer disclosure of pulse parameters and no United States regulatory framework comparable to the medical-device framework applied to therapeutic electrical stimulation units for human use (Lines, van Driel, and Cooper, 2013). United States public attitude data indicate that 70 percent of guardians believe shock collars harm their pet's emotional or mental wellbeing, that 69 percent consider them cruel, and that 59 percent would prefer to shock themselves than their dog (Petco, 2020). The constituency that would be inconvenienced by a sale and use prohibition is a minority of the consumer population, not a majority of it. A prohibition is therefore not only an animal welfare measure but a consumer protection measure.

The recommended policy is conservative in the technical sense. It follows established peer-reviewed science. It follows established veterinary welfare consensus. It follows established peer-reviewed veterinary research on the physical effects of neck-pressure equipment. It follows established international regulatory practice in jurisdictions across Europe, the United Kingdom, Australia, North America, and Latin America. It is not a radical proposal. It is a measured response to convergent evidence that has been on the table for over a decade.

The policy ask is direct. The first component is the prohibition of the sale, import, and use of aversive training equipment, including electronic collars, prong collars, choke chains, and citronella and scentless-air spray collars (with ultrasonic and audible-tone variants regulated under professional standards of practice rather than under the equipment-prohibition framework). The second component is the adoption of a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels’ Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework, enforced through state licensure of trainers and behavior consultants, with confrontational handling techniques excluded from licensed practice. Pending United States legislation in the 2024 to 2026 period in New York, New Jersey, Massachusetts, and Rhode Island, documented in Section 7.4, indicates that aversive-equipment regulation and trainer licensure are already under active legislative consideration in multiple states. Both components are necessary.

Together, they accomplish what the international veterinary, professional, and welfare consensus has called for: the comprehensive removal of aversive control as the basis of canine training and behavior modification in the United States. The peer-reviewed welfare science supports this action. The international veterinary consensus supports this action. The regulatory record of jurisdictions that have already acted supports this action. The United States should follow the evidence.

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Glossary

This glossary covers technical vocabulary used in the body of the paper. It is provided as a reference for legislators, legislative aides, and policy staff who may encounter unfamiliar terminology in the welfare science, neuroscience, and clinical behavior medicine literatures cited throughout. The basics of operant conditioning (positive and negative reinforcement, positive and negative punishment), the classical conditioning paradigm, and the standard force-free training procedures (counter-conditioning, desensitization, differential reinforcement) are not redefined here. The terms below are organized by domain: neuroscience and threat-circuit terminology, stress physiology, nociception and pain science, anatomy specific to neck-pressure injury, welfare science and assessment methodology, specialized learning theory beyond the basics, electronic device and electrical terminology, and regulatory and professional terms. Within each category, terms are listed alphabetically.

Neuroscience and threat-circuit terminology

Amygdala. A subcortical structure in the temporal lobe of the mammalian brain, central to processing threat-related stimuli, fear conditioning, and the assignment of negative affective valence to events. Activation of the basolateral and central amygdala is one of the most replicable findings in the fear-conditioning neuroscience literature on which Section 4 of this paper draws.

Anterior cingulate cortex. A cortical region involved in pain processing, conflict monitoring, and the integration of affective and cognitive information. Part of the broader threat-processing network that responds to aversive stimuli.

Conditioned emotional response (CER). A learned emotional reaction, typically fear or anxiety, elicited by a previously neutral stimulus that has been paired with an aversive event. CERs are central to understanding why aversive training produces emotional sequelae beyond the immediate behavior change. A dog corrected with a prong collar in the presence of other dogs may develop a CER linking other dogs with aversive stimulation. Treated in detail in Section 3.4.

Controllability. In aversive learning research, the technical property of an aversive stimulus regarding whether the subject's behavior can terminate, avoid, or prevent the stimulus. Controllability modulates downstream consequences of aversive stressors, including the spread of activation that produces learned helplessness, but does not render the stressor benign or stress-free.

Defensive circuitry (also called survival circuits). Joseph LeDoux's preferred terminology for the neural networks that respond to predicted aversive events, encode threat associations, and drive defensive behaviors including freezing, fleeing, fighting, and active avoidance. The amygdala is a central node in defensive circuitry.

Extinction learning. In Pavlovian terms, the process by which a conditioned response weakens when the conditioned stimulus is repeatedly presented without the unconditioned stimulus. In contemporary threat-circuit research, extinction is understood as new inhibitory learning rather than erasure of the original association. The original threat-related learning remains and can be reinstated. Relevant to claims that aversive training can be "faded out" once the dog has learned the association.

Hypothalamic-pituitary-adrenal (HPA) axis. The neuroendocrine system that produces the physiological stress response, releasing cortisol and other glucocorticoids in response to perceived threats. Repeated activation of the HPA axis over time produces documented changes in brain structure and function. See "chronic stress."

Periaqueductal gray (PAG). A midbrain region central to producing defensive behaviors (freezing, flight) and to descending pain modulation. Part of the canonical fear-conditioning circuit. PAG activation is a robust marker of threat-related neural processing.

Predictability. In aversive learning research, the technical property of an aversive stimulus regarding whether a reliable warning stimulus precedes the aversive event. Predictability modulates the magnitude of threat-related neural responding but does not eliminate it.

Prefrontal cortex. A set of cortical regions involved in executive function, decision-making, and top-down regulation of subcortical structures including the amygdala. Chronic stress produces documented atrophy of prefrontal dendrites and impairment of prefrontal function, which feeds back into reduced regulation of threat responses.

Safety signal. A stimulus that reliably predicts the absence of an aversive event, acquiring its value from its inverse relationship with the aversive contingency. Safety signals can positively reinforce avoidance behavior, but their value depends entirely on the aversive contingency that defines them; they do not remove the welfare cost of the underlying aversive contingency.

Threat circuit. A general term for the neural networks (centered on the amygdala, with contributions from hypothalamus, periaqueductal gray, locus coeruleus, and prefrontal cortex) that process aversive and threat-related stimuli and produce defensive responses. Contemporary fear-conditioning neuroscience characterizes aversive training, regardless of method or modality, as engaging this circuitry. Section 4.1 develops the implications.

Stress physiology

Chronic stress. Sustained activation of the stress response over extended time, producing documented changes in HPA axis regulation, hippocampal volume, prefrontal function, and amygdala reactivity. Distinct from the everyday colloquial use of "stress." References to chronic stress in this paper are to the technical research literature.

Cortisol. A glucocorticoid hormone released by the adrenal cortex as part of the HPA axis response. Often measured in welfare research as a proxy for stress, but with significant limitations. Cortisol can be suppressed, lagged, or buffered by context, and a non-significant cortisol finding does not establish welfare neutrality. Discussed in Section 3.3.

Glucocorticoids. A class of steroid hormones, of which cortisol is the primary one in dogs and humans. Produced by the adrenal cortex in response to HPA axis activation. Long-term elevation produces documented effects on brain, immune, and metabolic function.

Heart rate variability (HRV). The variability in time intervals between heartbeats, regulated by the autonomic nervous system. Reduced HRV is associated with sympathetic dominance and chronic stress states. Used as a non-invasive welfare marker in some canine research.

Learned helplessness. A behavioral and neural state, originally identified by Maier and Seligman in the 1960s and 1970s, in which prolonged exposure to uncontrollable aversive stimulation produces a passive behavioral profile and persistent activation of stress-system machinery. Maier and Watkins (2005) and subsequent neurobiological work have refined the original framework to emphasize that controllability modulates particular downstream sequelae of aversive stressors but does not eliminate the underlying stress response.

Stress reactivity. The magnitude and duration of the physiological response to a stressor. Chronic stress produces documented changes in stress reactivity, generally in the direction of heightened response to subsequent stressors.

Nociception and pain science

A-delta fiber. A type of myelinated nerve fiber that conducts sharp, fast pain signals from the periphery to the spinal cord. Activated by the high-intensity stimuli used in aversive training equipment, particularly mechanical-pressure equipment.

C-fiber. A type of unmyelinated nerve fiber that conducts slow, dull, burning pain signals. Often activated alongside A-delta fibers during sustained or intense nociceptive stimulation.

Mechanonociceptor. A nociceptor that responds preferentially to mechanical stimulation (pressure, pinching, stretching). Activated by the concentrated point pressure of prong collars and by the circumferential compression of choke chains.

Nociception. The neural process of detecting and transmitting potentially damaging stimuli. Distinct from pain, which is the conscious experience that may or may not result from nociceptive input. Aversive training equipment, by operating at intensities sufficient to drive avoidance learning, engages nociception by definition. Section 4.1 develops the distinction.

Nociceptive threshold. The minimum stimulus intensity that activates nociceptors. Stimuli below this threshold are not registered by the nociceptive system. The "working level" of an electronic collar, which by definition is sufficient to drive avoidance learning, is above the nociceptive threshold.

Nociceptor. A specialized sensory neuron that detects potentially damaging stimuli (mechanical, thermal, or chemical). The receptor end of the nociceptive system.

Tissue damage threshold. The stimulus intensity above which physical tissue injury occurs. Distinct from the nociceptive threshold: a stimulus can be nociceptive (engaging the pain system) without producing tissue damage. Aversive equipment proponents sometimes argue that a stimulus is harmless if it produces no visible tissue damage. That argument confuses these two thresholds.

Transcutaneous electrical nerve stimulation (TENS). A therapeutic medical device that delivers low-intensity electrical pulses through skin electrodes. In its conventional sensory-level mode for pain management, TENS operates at sub-nociceptive intensities by selectively recruiting low-threshold large-diameter A-beta sensory fibers, producing the characteristic non-painful tingle and engaging segmental gate-control inhibition without recruiting nociceptive A-delta or C fibers. TENS units are FDA-regulated medical devices with required disclosure of pulse parameters and adverse event reporting. The asymmetric regulation between TENS units and electronic dog training collars (which deliver substantially higher peak voltages with no comparable regulatory framework) is examined in Section 8.3.

Anatomy specific to neck-pressure injury

Carotid artery. The major artery supplying blood to the head, located in the neck. Compression of the carotid by neck-pressure equipment can produce reduced cerebral perfusion and acute increases in intraocular pressure.

Intraocular pressure. Fluid pressure within the eyeball. Documented in peer-reviewed canine research (Pauli et al., 2006) to increase under leash-and-collar pulling forces, with measurable elevations from neck-pressure equipment. Relevant to dogs with glaucoma or other ocular conditions, but elevation is documented in healthy dogs as well.

Jugular vein. The major venous return from the head, located in the neck. Compression of the jugular by neck-pressure equipment produces venous engorgement that contributes to the documented elevation of intraocular pressure.

Trachea (and tracheal). The windpipe. The primary airway between the larynx and the bronchi. Vulnerable to compression and structural injury under choke chain and prong collar forces, including documented tracheal collapse.

Welfare science and assessment methodology

Affective state. The internal emotional condition of the animal, comprising both valence (positive vs negative) and arousal. Contemporary welfare science treats affective state as a primary outcome of welfare assessment, alongside physical health.

Behavioral stress markers. The set of validated, observable behaviors used in canine welfare research as indicators of stress, including lip licking, yawning, low body posture, displacement behaviors, conflict behaviors, reduced approach, and increased vigilance. These markers are robust and meaningful as welfare indicators on their own and do not depend on convergent physiological measures. Section 3.3 develops this point.

Cognitive bias paradigm (also called judgment bias test). An experimental method for assessing affective state by measuring how an animal interprets ambiguous stimuli. Animals in negative affective states tend to interpret ambiguous cues pessimistically, anticipating a negative outcome. Animals in positive affective states interpret them optimistically. One of the few research paradigms that can directly assess affective state in non-verbal animals.

Convergent evidence. A research finding that the same conclusion is supported by multiple independent lines of evidence using different methods, populations, and outcome measures. The strongest form of evidence in any empirical field, because it cannot be undermined by methodological critique of any single study. The argument of this paper rests on convergent evidence across canine welfare science, neuroscience, stress physiology, nociception research, and clinical behavior medicine.

Five Domains model. An animal welfare assessment framework, developed and refined by Mellor and colleagues, that organizes welfare across five domains: nutrition, environment, health, behavior, and mental state. The Five Domains model is widely used in contemporary animal welfare science as the standard framework for assessing both positive and negative welfare states.

Welfare indicator. Any measurable variable used to assess an animal's welfare state. Contemporary welfare science emphasizes that welfare assessment requires convergence across multiple indicators (behavioral, physiological, affective) rather than reliance on any single measure.

Specialized learning theory beyond the basics

Functional definition. A definition based on the effect a procedure has on behavior, not on the procedure's label, topography, or descriptive properties. The behavior science definition of "aversive" is functional. A stimulus is aversive if its delivery decreases behavior or its termination reinforces behavior. This is the framework used throughout the paper. Section 2 sets it out.

Humane Hierarchy. Susan Friedman's procedural ranking of behavior-change interventions, ordered from least intrusive to most intrusive: distant antecedents, immediate antecedents, positive reinforcement, differential reinforcement of alternative behaviors, negative reinforcement, extinction and negative punishment, and positive punishment (Friedman, 2009). Developed as a teaching framework within applied behavior analysis. The Humane Hierarchy is methodologically rigorous as a description of the operant landscape but, because it includes all four operant quadrants, it does not function as a standards-of-practice framework. Discussed in Section 10.2.

LIMA (Least Intrusive, Minimally Aversive). A procedural-priority principle, coined by Steven Lindsay (2005) in volume 3 of the Handbook of Applied Dog Behavior and Training, that directs trainers and behavior consultants to select the least intrusive, minimally aversive procedure reasonably expected to succeed. LIMA orders interventions by intrusiveness but does not categorically exclude aversive procedures, allowing them at the bottom of the priority hierarchy under an "exhaust less intrusive alternatives first" principle. Adopted in modified form by several professional training organizations including the International Association of Animal Behavior Consultants and the Certification Council for Professional Dog Trainers. Discussed in Section 10.2.

Standards-of-practice framework. A normative document that specifies what working professionals should and should not do within their scope of practice, with the lines drawn from welfare evidence rather than from a methodological inventory. Distinct from a learning-theory framework (which catalogs the full operant landscape) and from a procedural-priority principle (which orders interventions but does not categorically exclude any). The Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) is cited as a leading articulation of the substantive force-free principles recommended for the model state standard of practice in this paper. Section 10.2 develops the distinction.

Two-factor (or two-process) theory of avoidance. A learning-theory account of avoidance learning, originally developed by Mowrer in the mid-twentieth century and updated by contemporary neuroscience, in which Pavlovian fear conditioning establishes the threat value of a warning stimulus and instrumental learning then produces an avoidance response that terminates exposure to the warning stimulus. Contemporary work locates the welfare cost of avoidance learning in the threat representation that the warning stimulus retains throughout, regardless of the fluency of the avoidance response.

Electronic device and electrical terminology

Bark-activated mode. An electronic collar configuration that delivers stimulation automatically when the dog vocalizes. Removed from Petco's retail inventory in October 2020 along with handheld remote-controlled shock collars.

Electrical impedance. The resistance to electrical current flow through tissue, varying significantly based on coat type, skin moisture, and electrode contact quality. Lines, van Driel, and Cooper (2013) documented that impedance varies substantially across realistic conditions, contributing to large variations in delivered stimulus energy from the same nominal collar setting.

Peak voltage. The maximum instantaneous voltage delivered during a stimulation pulse. One of several electrical characteristics that determine the actual stimulus intensity experienced by the dog. Lines, van Driel, and Cooper (2013) documented that peak voltage varies dramatically across commercially available products at the same nominal setting.

Pulse duration (also called pulse width). The temporal length of an individual electrical pulse delivered by an electronic collar, typically measured in microseconds or milliseconds. Combined with peak voltage and pulse rate, determines the total energy delivered. Not standardized across manufacturers and not disclosed at the point of sale.

Remote-controlled mode. An electronic collar configuration in which the handler manually triggers stimulation. The most common configuration in use among lay guardians per Masson, Nigron, and Gaultier (2018).

Stimulus energy. The total energy delivered in a stimulation event, typically measured in joules or millijoules. The product of voltage, current, and time. Lines, van Driel, and Cooper (2013) documented an 87-fold range of stimulus energy across commercially available models at the same nominal maximum setting, ranging from 3.3 millijoules to 287 millijoules.

Regulatory and professional terms

Accreditation. Independent evaluation and certification of an organization's training programs or credentialing standards. Distinct from individual certification.

Board-certified veterinary behaviorist. A veterinarian who has completed a residency in veterinary behavior and passed the certification examination of the American College of Veterinary Behaviorists or its international equivalents. The highest credential in the canine behavior field.

Certified applied animal behaviorist (CAAB or ACAAB). A non-veterinary credential issued by the Animal Behavior Society in the United States, requiring graduate-level academic training in animal behavior and supervised clinical experience.

Credentialing. The formal evaluation and recognition of an individual's professional qualifications, typically through examination and continuing-education requirements.

Diplomate of the American College of Veterinary Behaviorists (DACVB). A veterinarian who has completed a residency in veterinary behavior medicine accredited by the American College of Veterinary Behaviorists and passed the certifying examination. DACVBs are the only United States veterinary professionals with formally credentialed specialty practice in canine behavior medicine.

Licensure. Government-issued authorization to practice a profession, with associated standards-of-practice requirements and disciplinary mechanisms. Required for veterinarians, mental health counselors, social workers, and many other welfare-affecting professions. Currently not required for dog trainers or behavior consultants in any United States jurisdiction. The recommended policy in Section 10 includes state licensure of commercial dog training and behavior modification under a model state standard of practice that states may adopt individually, with multi-state adoption capable of producing a de facto national standard.

Scope of practice. The body of activities a credentialed professional is authorized to perform under the credential. Scope-of-practice frameworks define the boundaries of competent practice within a field and are the standard regulatory mechanism through which welfare-affecting professions are governed in the United States, including veterinary medicine, mental health counseling, social work, nursing, and other licensed practice areas.

Standards of practice. The body of professional norms that define what constitutes competent practice within a field. The recommended policy in Section 10 includes adoption of a substantive force-free model state standard of practice for commercial dog training and behavior modification, drawing on Linda Michaels' Hierarchy of Dog Needs® and Best Force-Free Practices (Michaels, 2022) as a leading reference framework.

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This Legislative Edition is the policy-focused companion to the Practitioner Edition of *The Scientific Case Against Aversive Dog Training Equipment and Methods* and to the *Studies Playbook: Peer-Reviewed Literature Behind the Force-Free Position* (Bangura, 2026). The Legislative Edition is structured for legislative readers, policy advocates, and stakeholders evaluating the case for state-level prohibition. The Practitioner Edition organizes the same evidence by argument; the playbook organizes it by source.

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