Police Service Dog

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Definition

A police service dog is a trained law-enforcement dog intentionally released, directed, or permitted to physically locate, engage, bite, hold, or apprehend a person as a use-of-force intervention.

This category includes:

- patrol/apprehension dogs;
- bite-and-hold deployment;
- find-and-bite deployment;
- bark-and-hold or find-and-bark systems when physical apprehension is authorized;
- directed canine engagement;
- canine pursuit intended to physically apprehend; and
- comparable police-dog force applications.

It excludes:

- passive tracking where the dog does not physically engage the subject;
- narcotics, explosives, or evidence detection;
- mere canine presence or barking used only as deterrence;
- searches where no physical apprehension is intended; and
- ordinary companion or non-police dog bites.

This definition corresponds with the research dataset, where `I_K9` is coded when a police dog is released with a command to bite, apprehend, or physically hold the decedent, whether or not the dog ultimately makes contact.

How It Is Designed to Work

A police service dog differs fundamentally from mechanical less-lethal weapons because the intervention is delivered by a living, independently moving animal under handler direction. The dog may be trained to locate a concealed person, pursue a fleeing person, close distance rapidly, seize the person with its jaws, maintain a bite-and-hold, prevent escape, force surrender through threat of apprehension, or physically hold the person until officers can approach and restrain them.

Bite-and-hold / find-and-bite

Under a bite-and-hold or find-and-bite model, the dog is generally trained to locate the person and physically seize them, often maintaining the bite until recalled or physically removed. The intended operational effect is immediate physical restraint, pain, interruption of movement, prevention of flight, and creation of an opportunity for officers to take control.

Find-and-bark / bark-and-hold

Under a find-and-bark model, the dog is trained to locate and indicate the person without automatically biting. Physical apprehension may occur only when the subject attacks, attempts to flee, refuses specific commands under circumstances defined by policy, or the handler directs the dog to engage. The distinction is important because training philosophy changes how often bites occur, not merely how the dog behaves after contact.

Mechanism of injury

Unlike OC spray or a CEW, a police dog that successfully bites normally causes some degree of physical injury. A bite can involve puncture, crushing, tearing, laceration, avulsion, vascular injury, nerve injury, tendon damage, fracture, and infection. The question is therefore not simply whether a bite can injure, but how much injury is reasonably expected, how often severe injury occurs, and whether that injury is justified by the governmental objective.

Evidence of Effectiveness

Overall assessment

Police dogs are widely used because they provide capabilities that other force options do not easily replicate. Potential operational advantages include locating hidden subjects, pursuing fleeing subjects faster than officers, physically controlling a person from a distance, reducing the need for officers to enter confined or concealed locations first, deterring flight or resistance through canine warnings, and allowing officers to maintain some physical separation during apprehension. The empirical literature is considerably stronger on bite frequency and injury than on clean apprehension-success rates, and the evidence is moderate for apprehension and training effects, strong for injury severity, and moderate for policy effects.

Training philosophy matters

Mesloh [(Mesloh, 2006)] examined whether canine training philosophy affects force outcomes, specifically addressing the shift from bite-and-hold toward bark-and-hold/find-and-bark systems. The central finding was that training model matters: agencies using different canine apprehension philosophies showed different bite ratios and force outcomes. This is important because it demonstrates that a police dog should not be treated as a single fixed technology – the risk profile depends partly on what the dog is trained to do when it finds someone, whether biting is automatic, handler control, recall reliability, and policy governing deployment.

Policy can reduce bites

Hutson and colleagues (Hutson et al., 1997) examined 705 available medical charts from law-enforcement K9 bites in Los Angeles County between 1988 and 1995, comparing outcomes before and after agencies shifted away from bite-and-hold or imposed stricter controls on canine teams. After those changes, the number of K9 bite patients presenting to the emergency department fell sharply, the proportion sustaining three or more bites decreased, hospitalization decreased from 52.0% to 33.8%, and some complication rates decreased; the number of treated bite patients fell from 639 in 1988–1991 to 66 in 1992–1995. This is one of the strongest findings in the K9 literature: policy and training changes can materially reduce the number and severity of police-dog bite injuries.

Apprehension capability

The medical literature does not provide a single generalizable K9 success rate. The persistence of canine programs, handler studies, and bite-ratio research supports the conclusion that police dogs can be effective at locating suspects, pursuing, preventing escape, and physically apprehending, but what remains poorly quantified is whether a canine is more effective than alternative tactics once differences in encounter type and subject behaviour are controlled.

What is missing

The literature does not provide a reliable universal estimate for the percentage of deployments resulting in apprehension, the probability that a warning alone produces surrender, the probability of avoiding firearm use, comparative success versus CEW, impact projectile, or containment, average time from release to control, probability of wrongful or unintended bite, probability of failed recall, effectiveness specifically against persons armed with edged weapons, or whether canine deployment reduces overall officer injury in equivalent high-risk encounters.

Injury and Safety Evidence

Foundational injury study

Hutson and colleagues (Hutson et al., 1997) provide one of the most important medical datasets on police-dog bites. Among 705 reviewed cases, 57.2% of patients sustained three or more bites, 19.3% developed complications, 7.0% had vascular complications, 5.0% developed infection, 4.0% had fracture or cortical violation, 1.9% sustained nerve injury, 1.1% sustained tendon injury, and 49.9% were hospitalized; the median hospital stay among admitted patients was three days. These findings make police-dog force qualitatively different from many other less-lethal modalities: the injury burden is not limited to temporary pain.

Emergency-department management

Pineda and colleagues (1996) described the emergency management of law-enforcement K9 bites, documenting the depth and complexity of these injuries. Police-dog bites can produce deep puncture wounds,

crushing injuries, extensive tissue disruption, vascular injury, nerve damage, tendon damage, fracture, infection, and wounds requiring surgical exploration or repair. These characteristics reflect both the anatomy of a dog's bite and the training goal of maintaining physical control.

Police versus domestic dog bites

Meade (Meade, 2006) compared 595 police-dog bite victims with 1,109 domestic dog-bite victims, finding that police-dog bite victims were more often bitten multiple times, more often bitten in the head, neck, chest, and flank, hospitalized more frequently, underwent more operations, and required more invasive diagnostic testing. The author concluded that police-dog bites were more serious than domestic dog bites and linked that difference to the breeds selected for police work and specialized apprehension training. This is a particularly important comparison because it demonstrates that injury evidence from ordinary pet bites cannot be used as a proxy for police-dog force.

National emergency-department burden

Loder and Meixner (Loder & Meixner, 2019) analyzed national emergency-department surveillance data for 2005–2013, estimating approximately 32,951 K9-related emergency-department visits over the study period, representing approximately 1.1% of all dog-bite emergency visits. The estimated average annual incidence was 2.43 K9 bites per 100,000 males. The study found no clear decline in national K9 bite incidence over time despite professional recommendations encouraging movement away from find-and-bite models, suggesting that policy reform observed in individual departments may not necessarily translate into national change.

Clinical burden compared with CEW injury

Coombs and colleagues (Coombs et al., 2019) compared 75 K9-injury patients with 80 TASER-injury patients at a Level I trauma centre, finding that K9 patients had higher clinical acuity, required more medical procedures, had longer hospital stays, and generated approximately twice the treatment cost; nearly one-third of K9 patients required tertiary-level medical care. This direct comparison is highly important for the evidence library because both tools are commonly classified broadly as less-lethal force, yet their injury burdens are not equivalent.

Comparative use-of-force evidence

MacDonald, Kaminski, and Smith (MacDonald et al., 2009) found important differences in injury risk among police force modalities across 24,380 use-of-force incidents, and Bozeman and colleagues (Bozeman et al., 2018) similarly found that significant injury in their prospective cohort was particularly associated with firearm and canine use. Nielsen and colleagues (Nielsen et al., 2025) synthesized real-world studies comparing CEW, OC, baton, canine, and physical force, and across comparative evidence police-canine deployment was consistently associated with elevated subject-injury risk. The direction of the evidence is therefore unusually consistent: police canine force is one of the higher-injury less-lethal/intermediate-force modalities when a physical bite occurs.

Injury Is Part of the Mechanism

For many less-lethal tools, injury is an unwanted side effect of a mechanism intended primarily to produce irritation, temporary electrical incapacitation, or behavioural compliance. For a bite-and-hold police dog, tissue injury is more closely connected to the actual mechanism of control: the dog stops movement by closing its jaws around tissue, applying pressure, holding, pulling, and sometimes re-biting or repositioning. This distinction matters ethically, medically, and legally because a "successful" bite may simultaneously be an "injury," and success and harm therefore cannot be measured as independent outcomes.

Bite Duration Matters

The severity of a canine deployment is affected not only by whether a bite occurs, but by how long the dog remains engaged. Longer bite duration can increase the number of wounds, tissue tearing, vascular damage, nerve injury, psychological trauma, and the need for surgery. Handler recall and physical control are therefore central safety variables. A bite initially justified by a fleeing or assaultive person may become excessive if the dog continues biting after surrender, handcuffing, loss of resistance, or the threat has otherwise ended.

Bite Location Matters

Although extremity bites are common, police dogs can bite vulnerable regions including the head, face, neck, chest, groin, and proximal limbs containing major vessels. Potential consequences include major bleeding, facial disfigurement, neurovascular injury, airway injury, and permanent disability. The police-versus-domestic comparison by Meade (Meade, 2006) is particularly relevant because police dogs showed a greater tendency toward multiple bites and bites involving more consequential anatomical regions.

Infection Risk

Dog bites introduce bacteria deep into tissue. Potential complications include cellulitis, abscess, deep-space infection, osteomyelitis, septic complications, and delayed wound healing. Hutson et al. (Hutson et al., 1997) reported infection in approximately 5% of reviewed K9 bite patients, and the true clinical burden may depend on depth, contamination, time to irrigation, wound closure, tissue devitalization, and patient health.

When Its Use May Be Appropriate

The evidence does not establish a universal deployment threshold. Canine apprehension is most defensible where a subject poses a substantial safety threat, a dangerous suspect is fleeing and cannot safely be apprehended through lower-risk means, the subject is concealed in a location that would expose officers to significant risk, the dog can reduce the need for officers to enter a hazardous space first, warnings are feasible and have been given where appropriate, the handler maintains effective control, and the governmental interest is proportionate to the foreseeable injury risk. Potentially appropriate circumstances include searching for a

dangerous armed suspect, locating and apprehending a violent fleeing felon, preventing escape by a person reasonably believed to pose a serious threat, apprehending a concealed subject where direct officer entry creates substantial danger, or interrupting an active physical attack. The strongest justification is generally where canine deployment substitutes for high-risk officer entry, prolonged physical struggle, or potentially lethal force.

When Its Use May Be Inappropriate

Minor offense with little threat

Because physical apprehension carries a meaningful probability of tissue injury, canine bite force is difficult to justify solely to apprehend a person suspected of a minor offense who poses little or no immediate danger.

Non-resisting or surrendered subject

A police dog should not continue biting a person who has clearly surrendered, is handcuffed, is physically controlled, is no longer attempting to flee, or no longer presents a meaningful threat.

Prolonged bite after control

A canine deployment can change from justified to excessive during the same incident. The key question becomes at what point continued biting stopped serving a legitimate apprehension or safety objective.

Failure to warn where warning is feasible

A canine warning can itself produce surrender without injury. Where officers have time to warn and doing so would not create substantial danger, failure to provide a meaningful warning can weaken the justification for a bite.

Vulnerable or unintended subject

Canines introduce a degree of independent movement and target-selection risk. Deployment may be especially problematic where children are nearby, multiple people are hiding together, victims or hostages are close to the suspect, the environment makes visual identification difficult, or the dog cannot reliably distinguish the intended target.

Immediate edged-weapon confrontation

A police dog may be capable of disrupting an armed person, but deployment can expose both the dog and officers approaching behind it to serious edged-weapon injury. The evidence base does not establish a reliable probability that canine engagement will prevent an armed person from stabbing the dog, an officer, a hostage, or another nearby person. A canine should not be assumed to provide firearm-equivalent stopping reliability in a rapidly developing lethal assault.

Relevance to Edged-Weapon Encounters

A police service dog can physically engage an edged-weapon subject in a way that few other less-lethal options can. That capability may interrupt movement or create an opportunity for officers to act, but it transfers substantial risk to the dog and does not guarantee that the subject will lose the ability to stab or cut.

Potential role

A K9 may contribute by locating an armed concealed subject, preventing escape, physically engaging the subject from a position separated from the handler, disrupting movement, occupying the subject's attention, or creating an opportunity for officers to disarm and restrain. This may be particularly relevant where direct officer entry into a confined or concealed location would expose officers to immediate danger.

Conditions favouring deployment

Deployment is more plausible where the subject is dangerous, fleeing, or concealed, the dog can approach without exposing uninvolved persons, the handler can maintain effective control and recall, officers have a coordinated plan for what happens once the dog engages, and the encounter provides enough tactical structure to avoid uncontrolled close-contact convergence around the armed person.

Failure consequences

A dog bite does not necessarily prevent continued weapon use. The subject may remain capable of stabbing the dog, stabbing an approaching officer, transferring the weapon to another hand, continuing to move, or attacking a nearby third party. The literature does not provide a reliable probability that canine engagement will stop an edged-weapon attack.

Risk trade-off

For the subject, canine force carries a comparatively high probability of meaningful tissue injury, including vascular, nerve, tendon, fracture, and surgical injuries (Hutson et al., 1997; Meade, 2006; Coombs et al., 2019). For police, deployment may reduce the need for the first officer to physically enter the subject's space, but approaching to secure the person after a bite can reintroduce close-range edged-weapon risk. For the dog, deployment intentionally places the animal within the weapon's effective range. K9 deployment is therefore most defensible where its unique search or apprehension capability materially reduces a greater danger and where officers can manage the armed subject immediately after engagement. A bite by itself does not neutralize an edged weapon.

U.S. Legal Considerations

Fourth Amendment framework

Police-dog use during an apprehension is generally analyzed under the objective-reasonableness standard of *Graham v. Connor*. Relevant considerations include the severity of the suspected offense, whether the person

poses an immediate threat, whether the person is actively resisting or fleeing, whether the person is believed to be armed, availability of warning, whether the person is hidden or visible, duration of the bite, whether the dog is promptly recalled once control is achieved, and the totality of the circumstances.

Chew v. Gates

Chew v. Gates, 27 F.3d 1432 (9th Cir. 1994) is a foundational police-canine excessive-force case. Los Angeles police used a canine to locate and apprehend Chew after he fled from a traffic stop and hid; the dog located him and inflicted severe injuries. The Ninth Circuit held that a reasonable jury could find the canine force excessive, and the case is especially important because it recognized that police-dog bites constitute substantial force and that bite-and-hold policy itself can be relevant to municipal liability. *Chew* remains a central case for evaluating the severity of the offense, immediacy of threat, flight, canine policy, and the foreseeable severity of bite injuries.

Watkins v. City of Oakland

In *Watkins v. City of Oakland*, 145 F.3d 1087 (9th Cir. 1998), a police dog apprehended a suspect believed to have committed a burglary. The Ninth Circuit focused heavily on duration of the bite and handler control, holding that even if initial deployment was reasonable, a jury could find that allowing the dog to continue biting after the suspect was under control constituted excessive force. *Watkins* is especially important for the principle that the justification for releasing a dog does not automatically justify the full duration of the bite.

Miller v. Clark County

In *Miller v. Clark County*, 340 F.3d 959 (9th Cir. 2003), the Ninth Circuit upheld canine force used against a fleeing suspect believed to have committed a serious crime and who was hiding in wooded terrain. The court emphasized serious suspected criminal conduct, flight, concealment, uncertainty about whether the suspect was armed, and warnings given before the dog was released. *Miller* demonstrates that canine force can be constitutionally reasonable where the governmental interest is substantial and the circumstances create meaningful officer-safety concerns.

Lowry v. City of San Diego

In *Lowry v. City of San Diego*, 858 F.3d 1248 (9th Cir. 2017) (en banc), a police dog bit a person during a building search after a burglary alarm. The Ninth Circuit concluded that the force was objectively reasonable under the particular circumstances. The decision again illustrates that canine cases are intensely fact-specific, with important factors including the nature of the alarm, uncertainty about who was inside, the search context, officer safety, and the manner in which the dog was used.

Warning

Across canine cases, warning is a recurring factor. A clear canine announcement may encourage surrender, reduce unnecessary bites, and strengthen the constitutional justification for deployment where the person

refuses to comply. Warnings are not required where they would create an unreasonable danger, but failure to warn when feasible can weigh against reasonableness.

Qualified immunity

Qualified-immunity analysis is highly fact- and circuit-specific. Several principles are nonetheless well established in many jurisdictions: gratuitous canine bites against non-threatening or surrendered persons can violate the Fourth Amendment; prolonged bites after control can be excessive; serious suspected crime and active flight strengthen the governmental interest; canine force against a hidden potentially dangerous suspect may be reasonable; warning matters where feasible; and handler control over duration remains constitutionally important. The law is therefore not well described by a simple rule that K9 use is permitted against fleeing suspects – the kind of offense, threat, warning, concealment, resistance, and duration all matter.

Ethical and Moral Considerations

Police service dogs raise distinct ethical issues because they are both force tools and living animals capable of suffering and independent action.

Injury as the mechanism

The strongest ethical distinction from many other less-lethal options is that a bite generally works by physically injuring or threatening to injure tissue. The moral justification therefore depends on whether that foreseeable injury is proportionate to the public-safety benefit.

Proportionality

A high-injury apprehension method is more ethically defensible against a violent suspect, an armed person, a serious fleeing felon, or someone whose concealment creates significant officer danger. It is less defensible for minor property offenses, low-level noncompliance, passive resistance, or situations where safer apprehension methods are readily available.

Training philosophy

The evidence that policy and training can reduce bites creates an ethical obligation to consider less injurious canine training models where they can achieve comparable public-safety objectives. If find-and-bark or stricter handler control can reduce unnecessary bites without materially compromising apprehension, retaining a more injurious model requires justification.

Warning

Because warnings may produce surrender without a bite, they are ethically important where operationally feasible. The avoidance of injury should be treated as a legitimate tactical objective.

Duration

Each additional second of bite-and-hold can produce additional tissue damage. Handler recall is therefore not merely a training issue but part of the moral limit on continuing force.

Risk to the dog

Deploying a police dog against an armed person also exposes the animal to stabbing, shooting, blunt trauma, and death. A complete ethical analysis should therefore consider harm not only to the subject, officers, and bystanders, but also to the working animal intentionally placed into danger.

Psychological effects

Police-dog attacks may produce substantial fear and psychological trauma beyond physical injury. This harm is less well quantified in the medical literature but should not be treated as irrelevant simply because it does not appear in hospitalization data.

Evidence Limitations

The K9 evidence base has several important limitations. First, many of the strongest medical studies are older, with the foundational Los Angeles data reflecting canine practices from the late 1980s and 1990s. Second, modern national data remain limited, as Loder and Meixner provide national emergency-department estimates but not complete police deployment denominators. Third, medical datasets capture bites, not all deployments, so warnings, searches, and apprehensions without injury are generally absent. Fourth, K9 use is heterogeneous, and find-and-bark and bite-and-hold systems should not be treated as identical. Fifth, bite duration is often poorly documented in research datasets. Sixth, canine breed, size, training, and handler practice vary. Seventh, police-dog injury studies may overrepresent urban departments with mature K9 programs. Eighth, comparative injury studies are affected by selection bias, because dogs are often deployed in more dangerous encounters. Ninth, apprehension effectiveness is under-measured relative to injury. Tenth, evidence specific to edged-weapon encounters is sparse. Eleventh, wrongful-target bites and accidental bites are not consistently captured. Twelfth, modern body-worn-camera data could answer many of these questions but remain underused in peer-reviewed research.

Bottom Line

Effectiveness

Moderate evidence that police dogs are effective at locating, pursuing, and physically apprehending subjects, but high-quality evidence providing a generalizable apprehension-success rate is limited.

Injury

High relative injury burden. Police-dog bites commonly involve multiple punctures, tearing, and deep tissue injury and are more severe than ordinary domestic dog bites.

Serious injury/death

Serious injury is well documented. Vascular injury, fracture, nerve damage, tendon injury, infection, surgery, and hospitalization occur at meaningful rates in medical cohorts. Death is uncommon but biologically possible.

Comparative safety

Police canine force is consistently among the more injurious commonly studied less-lethal/intermediate-force options. Modern comparative studies generally place canine injury risk above CEW and OC and often above baton use.

Training effect

Policy matters. Changes away from automatic bite-and-hold deployment and toward stricter handler control have been associated with substantial reductions in bites, hospitalization, and some complications.

Tactical limitation

A bite is not a low-injury intervention simply because it is non-firearm force. The expected physical injury must be justified by the seriousness and immediacy of the governmental objective.

Risk-benefit assessment

The strongest justification for police-dog apprehension is a dangerous, fleeing, concealed, or violent subject whose apprehension would otherwise expose officers or the public to substantial risk. Its weakest justification is against minor offenders, non-threatening persons, surrendered or controlled subjects, or circumstances where continued biting persists after the original justification has ended.

Core Peer-Reviewed Evidence

1. Hutson, H. R., Anglin, D., Pineda, G. V., Flynn, C. J., Russell, M. A., & McKeith, J. J. (1997)
Law Enforcement K-9 Dog Bites: Injuries, Complications, and Trends.
Annals of Emergency Medicine, 29(5), 637–642.
DOI: 10.1016/S0196-0644(97)70253-1

Priority: Essential / foundational injury and policy study.

Contribution: Reviewed 705 available medical charts from police K9 bite patients between 1988 and 1995.

Key findings: 57.2% sustained three or more bites, 19.3% developed complications, and 49.9% were hospitalized.

Policy finding: Following changes away from bite-and-hold or toward stricter K9 controls, the number of bite patients and hospitalizations decreased substantially.

Key value: Direct evidence that canine policy can alter both bite incidence and medical severity.

Limitation: Historical single-region data and no denominator for all canine deployments.

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2. Mesloh, C. (2006)

Barks or Bites? The Impact of Training on Police Canine Force Outcomes.
Police Practice and Research, 7(4), 323–335.
DOI: 10.1080/15614260600919670

Priority: Essential training/effectiveness study.

Contribution: Examined how canine training philosophy affects bite ratios and force outcomes.

Key finding: Bite-and-hold and bark-and-hold approaches produce meaningfully different force outcomes.

Key value: Demonstrates that canine injury risk is shaped by training and policy rather than being an unavoidable constant.

Limitation: Relies on handler and agency data rather than randomized assignment.

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3. Meade, P. C. (2006)

Police and domestic dog bite injuries: What are the differences? What are the implications about police dog use?
Injury Extra, 37(11), 395–401.
DOI: 10.1016/j.injury.2006.05.007

Priority: Essential comparative injury study.

Contribution: Compared 595 police-dog bite victims with 1,109 domestic dog-bite victims.

Key finding: Police-dog victims sustained more multiple bites, more bites to consequential anatomical regions, more hospitalizations, more operations, and more invasive diagnostic procedures.

Key value: Establishes that ordinary domestic-dog injury data underestimate the severity of trained police-dog bites.

Limitation: Historical Los Angeles police-dog cohort.

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4. Pineda, G. V., Hutson, H. R., Anglin, D., Flynn, C. J., & Russell, M. A. (1996)

Managing Law Enforcement (K-9) Dog Bites in the Emergency Department.

Academic Emergency Medicine, 3(4), 352–359.

DOI: 10.1111/j.1553-2712.1996.tb03449.x

Priority: Foundational clinical management evidence.

Contribution: Describes the medical characteristics and treatment implications of police-dog bites.

Key value: Documents deep puncture, crushing, tissue disruption, neurovascular injury, infection risk, and the need for careful emergency evaluation.

Limitation: Clinical management focus rather than deployment effectiveness.

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5. Coombs, A. V., et al. (2019)

Investigating Clinical and Cost Burdens of Law Enforcement–Related K9 Injuries: The Impact of "the Bite" on a Community Hospital.

The American Surgeon, 85(1), 64–70.

DOI: 10.1177/000313481908500133

Priority: Essential modern comparative clinical study.

Contribution: Compared 75 K9-injury patients with 80 TASER-injury patients.

Key finding: K9 patients had greater acuity, required more procedures, had longer hospital stays, and generated approximately twice the treatment cost.

Key value: Directly demonstrates that two nominally "less-lethal" technologies can have very different injury burdens.

Limitation: Single trauma centre and treatment-selected sample.

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6. Loder, R. T., & Meixner, C. (2019)

The demographics of dog bites due to K-9 (legal intervention) in the United States.

Journal of Forensic and Legal Medicine, 65, 9–14.

DOI: 10.1016/j.jflm.2019.04.008

Priority: High / national surveillance evidence.

Contribution: Used national emergency-department surveillance data from 2005–2013.

Key finding: Estimated approximately 32,951 K9-related emergency visits, representing 1.1% of all dog-bite ED visits.

Key finding: National K9-bite incidence showed no clear decline over the study period.

Limitation: Captures medically attended bite injuries, not all canine deployments.

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7. MacDonald, J. M., Kaminski, R. J., & Smith, M. R. (2009)
The Effect of Less-Lethal Weapons on Injuries in Police Use-of-Force Events.
American Journal of Public Health, 99(12), 2268–2274.
DOI: 10.2105/AJPH.2009.159616

Priority: High comparative field evidence.

Contribution: Examined 24,380 use-of-force incidents across 12 police departments.

Key value: Demonstrates substantial differences in injury risk across force modalities and provides important context for canine force relative to CEW and OC.

Limitation: Observational design and agency variation.

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8. Bozeman, W. P., et al. (2018)
Injuries associated with police use of force.
Journal of Trauma and Acute Care Surgery, 84(3), 466–472.
DOI: 10.1097/TA.0000000000001783

Priority: High medically assessed comparative evidence.

Contribution: Prospective multicentre use-of-force injury study with physician assessment.

Key finding: Significant injury was particularly associated with firearm and canine use.

Key value: Independent clinical confirmation that canine force sits toward the higher-injury end of common police force options.

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9. Nielsen, M., Munkholm, J., Banner, J., & Wingren, C. J. (2025)
Injury rates following conducted electrical weapons and other less-lethal force modalities in real-life police settings: a comparative literature review.
Forensic Science, Medicine and Pathology, 21, 1396–1406.
DOI: 10.1007/s12024-025-01020-9

Priority: Essential current comparative synthesis.

Contribution: Reviews 19 real-world studies comparing CEW, OC, baton, canine, and physical force.

Key finding: Canine deployment was consistently associated with elevated subject-injury risk across multiple comparisons.

Key value: Provides the strongest contemporary synthesis placing canine force within the broader less-lethal injury spectrum.

Limitation: Heterogeneity in police policy and injury definitions prevents a single universal injury probability.

Evidence Rating

Apprehension effectiveness: ★★★☆☆ to ★★★★☆
Police dogs clearly provide effective search, pursuit, and apprehension capabilities, but generalizable success-rate research is limited.

General injury evidence: ★★★★★
Multiple medical cohorts consistently document substantial tissue injury.

Serious-injury probability: ★★★★☆
Vascular injury, fracture, nerve damage, tendon injury, surgery, and hospitalization are well documented.

Mortality evidence: ★★☆☆☆ to ★★★☆☆
Death is biologically possible but uncommon and poorly quantified relative to all deployments.

Comparative evidence: ★★★★★
Consistent evidence places canine force among the more injurious common less-lethal/intermediate options.

Training/policy evidence: ★★★★☆
Strong observational evidence shows policy and training philosophy can materially alter bite rates and injury burden.

Modern national evidence: ★★★☆☆
National emergency-department estimates exist, but complete deployment denominators are lacking.

Overall confidence: Moderate-to-high.

Research-library conclusion

Police service dogs provide a distinctive operational capability: they can locate, pursue, and physically apprehend people in circumstances where direct officer contact may be difficult or dangerous. That capability carries a comparatively high injury burden. Unlike many less-lethal options, physical injury is closely tied to

the mechanism of successful bite-and-hold apprehension. Medical studies document multiple bites, vascular injury, fracture, nerve and tendon damage, infection, surgery, and frequent hospitalization, and comparative research consistently places canine force among the more injurious intermediate-force options. Importantly, these outcomes are not fixed: training philosophy, warning, handler control, and bite duration materially affect how often and how severely people are injured. The strongest justification for canine apprehension is therefore a dangerous, fleeing, concealed, or violent subject whose capture would otherwise expose officers or the public to substantial risk. Its weakest justification is against minor offenders, non-threatening persons, surrendered subjects, or after continued biting no longer serves an immediate apprehension or safety objective.

References

Bozeman, W. P., Stopyra, J. P., Klinger, D. A., Martin, B. P., Graham, D. D., Johnson, J. C., . . . Vail, S. J. (2018). Injuries associated with police use of force. *Journal of Trauma and Acute Care Surgery*, *84*(3), 466–472. https://doi.org/10.1097/TA.0000000000001783

Coombs, A. V., Eyerly-Webb, S. A., Solomon, R. J., Sanchez, R., Lee, S. K., Carrillo, E. H., . . . Davare, D. L. (2019). Investigating Clinical and Cost Burdens of Law Enforcement–Related k9 Injuries: The Impact of "the Bite" on a Community Hospital. *The American Surgeon™*, *85*(1), 64–70. https://doi.org/10.1177/000313481908500133

Hutson, H., Anglin, D., Pineda, G. V, Flynn, C. J, Russell, M. A, & McKeith, J. J. (1997). Law Enforcement k-9 Dog Bites: Injuries, Complications, and Trends. *Annals of Emergency Medicine*, *29*(5), 637–642. https://doi.org/10.1016/S0196-0644(97)70253-1

Loder, R. T., & Meixner, C. (2019). The demographics of dog bites due to k-9 (legal intervention) in the United States. *Journal of Forensic and Legal Medicine*, *65*, 9–14. https://doi.org/10.1016/j.jflm.2019.04.008

MacDonald, J. M., Kaminski, R. J., & Smith, M. R. (2009). The Effect of Less-Lethal Weapons on Injuries in Police Use-of-Force Events. *American Journal of Public Health*, *99*(12), 2268–2274. https://doi.org/10.2105/AJPH.2009.159616

Meade, P. C. (2006). Police and domestic dog bite injuries: What are the differences? What are the implications about police dog use? *Injury Extra*, *37*(11), 395–401. https://doi.org/10.1016/j.injury.2006.05.007

Mesloh, C. (2006). Barks or Bites? The Impact of Training on Police Canine Force Outcomes. *Police Practice and Research*, *7*(4), 323–335. https://doi.org/10.1080/15614260600919670

Nielsen, M., Munkholm, J., Banner, J., & Wingren, C. J. (2025). Injury rates following conducted electrical weapons and other less-lethal force modalities in real-life police settings: a comparative literature review. *Forensic Science, Medicine and Pathology*, *21*(3), 1396–1406. https://doi.org/10.1007/s12024-025-01020-9

HOW TO CITE

Edged-Weapon Response Lab. (2026). *Police Service Dog*. In *EWRL Evidence Library* (Version 1.0). https://droptheknife.org/evidence-base/I_K9 (https://droptheknife.org/evidence-base/I_K9)