# Barks or Bites? The Impact of Training on Police Canine Force Outcomes

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*The use of force with police dogs has caught the attention of both the media and the federal government, specifically the Department of Justice (DOJ). The DOJ recommendation of interest to this study is the paradigmatic shift from 'bite and hold' to 'bark and hold' in canine apprehension methods. As there is no prior literature to base this decision upon, the question remains, will this reduce the number of suspects bitten by police dogs? This work attempts to answer this question by asking canine handlers to reveal their bite ratios through an innovative matrix (Bite Ratio Data Collector), which then became the force measurement. The results denote a number of findings. First, handlers with 'bark and hold' trained canines reported higher bite ratios than handlers with 'bite and hold' trained dogs. Second, additional factors such as dog breed, and Schutzhund training were all significant correlates of canine force in the final model.*

*Keywords:  Police Dog; Use of Force; Canine; K-9; Less Lethal*

## Introduction

Law enforcement agencies frequently use specially trained dogs for a variety of important purposes to aid in the detection and deterrence of crime. The primary reason is that dogs are a cost effective means for crime control. These dogs possess skills and abilities that frequently exceed that of existing technology. Their use in the past has provided law enforcement with a valuable tool, which if used properly, can improve both the efficiency and effectiveness of policing, all the while serving as an important public relations tool. However, little empirical research has been conducted regarding police dog deployment as a use of force.

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This study sought to examine the effect of the paradigmatic shift to the 'bark and hold' training method of patrol dogs in the state of Florida who were identified by the Florida Department of Law Enforcement and determine to what extent bite ratios differ based upon selected demographic and training variables.

## Literature Review

Dogs have shared their lives with mankind for the better part of the last 20,000 years. Some research indicates that the first domesticated canines were wolves used for the purpose of assisting humans hunt for food (Lilly & Puckett, 1997). This research is supported by a recent archeological discovery of a 12,000-year-old skeleton found cradling the body of a pup (Lange, 2002). Not only have canines helped humans hunt for food and provided them companionship, but they have also been used to provide for their master's protection. In fact, since early times, canines have been trained to fight and die on command (Jennings, 1998; Lilly & Puckett, 1997).

The extant literature on the use of canines in warfare dates as far back as 700 BC (Chapman, 1990). Evidence of their military contributions can be found in every conflict since antiquity (Lilly & Puckett, 1997; Murray, 1988). During World War II, it is estimated that 250,000 dogs were used by the participants of both sides in a variety of functions (Marders, 1960; United States Air Force, 1973). One military analysis credits scout dogs with saving over 2,000 American lives during the Vietnam conflict (Murray, 1988).

The legal and practical importance of this study will become self-evident. Over the past year, the International Association of Chiefs of Police (IACP) has expressed interest and concern with the use of force by canine handlers and their partners. As a result, IACP's model policy regarding canine unit utilization proposed that 'Bark and Hold' be adopted by all law enforcement agencies. Shortly afterward, the Department of Justice (DOJ) in their publication, 'Principles for Promoting Police Integrity'[1] stated that agencies should train their dogs 'to find and bark rather than find and bite.'[2]

To truly understand the issue of how force is involved in these apprehensions, one must understand how canines are trained. The next section details the two competing apprehension paradigms of how police canines are trained in this country and details the differences between them.

### *'Bite and Hold'*

According to MacKenzie, one of 'the greatest controversies centers around what the dog should do when, during a pursuit or search, the subject is standing still as the dog arrives and makes contact' (1992, p. 18). The most common system of apprehension is 'bite and hold.' The canine is sent and the apprehension is made by the dog as he engages (bites) the suspect and does not release until the handler arrives. A number of training tools such as the bungee cord and the shock collar may be used for remedial training for dogs that re-bite inappropriately or fail to release on command.

Dogs trained in this system engage the suspect under the order of the officer without provocation from the suspect. The dog remains under voice control at all times and should be operated within line of sight. However, tactical deployments frequently make visual inspection of the dog nearly impossible. According to Eden (2003),

> A well trained service dog can be recalled at any point from the attack. Control of the dog through voice command permits the officer to call the dog off prior to or subsequent to the apprehension as the situation warrants. (p. 4)

This model has proven to be a very effective way to bring suspects fleeing from an officer under compliance quickly. While some argue that canines trained this way represent a less than lethal force option, others say that the use of canines to bite the suspect without giving the suspect a last chance to comply before the canine arrives represents the use of excessive force.

### 'Bark and Hold'

As a result of litigation and evolving law enforcement policies, a different form of training for police dogs has been suggested for implementation by the DOJ (see 'Principles for Promoting Police Integrity,' 2001, pp. 5–6) and the IACP (2001). This model is known as 'bark and hold.' According to Eden (1993), the theory of the reasonable force dog maintains, 'if a suspect gives up, the dog will not bite and the dog is frequently in the position to make the decision whether or not to bite' (p. 8).

According to Yarnall (1998), the 'circle and bark' was developed to protect the canine that might be working away from the handler and would be killed by suspects that had learned to protect themselves from dogs that only attack, or bite without release. The idea is that the dog delays the suspect until the handler can arrive and make the arrest. Conceptually in this methodology, the dog will bark but will not engage the suspect unless he moves. The dog's primary function in this system is detection and not neutralization (unless the suspect perpetuates it through aggressive actions). It has been suggested that the bite ratio for 'bark and hold' is significantly lower than for 'bite and hold.'

Critics of this system believe that it places the dogs at greater risk by allowing the suspect the opportunity to arm himself, injure or kill the dog, or escape (Eden, 1993). Additionally, it has been argued that if a suspect were to disable the dog, the officer is tactically at a disadvantage and the agency is left with the cost of replacing a trained dog (MacKenzie, 1992).

A great deal of training is required to maintain 'bark and hold' dogs. If this training is not adequate, the dog will begin to bite when it is not warranted (Eden, 1993). As a result of training methods, the dog may also perceive the bite as the reward for apprehending the suspect. When this happens, the dog will precipitate the movement of the suspect by bumping them, thus fulfilling the requirements necessary for a 'proper' bite. This will greatly increase the number of inappropriate bites and have exactly the opposite effect sought by the DOJ. This point was clearly made by Eden (2003) who stated:

> a 'circle and bark' dog however, is trained to attack on the slightest movement … there is very little tolerance level in a 'circle and bark' dog. If he locates a suspect and the suspect stumbles or moves accidentally, there is a high likelihood of an unwarranted bite. (p. 5)

If it is indeed true that the 'bark and hold' training method results more often in the use of excessive force, then it is reasonable to assume that agencies and officers that train their dogs using this method are more likely to have significantly higher bite ratios than other agencies that train their dogs using 'bite and hold techniques.' This proposition is one that has never been tested in the extant literature.

## Canine as a Forceful Intervention

Just as the police officer on the street may improperly use a baton or firearm on a suspect, the canine handler may improperly or unknowingly utilize his dog and create unnecessary injury. Given that a German shepherd can exert a bite force of 1,500 psi (Hutson et al., 1997), the potential for serious injury is great. These injuries range from deep punctures, to large rips and crush damage (Hutson et al., 1997; Pineda, Hutson, Anglin, Flynn, & Russell, 1996).

Unfortunately, after conducting an exhaustive search of the literature, very few articles could be identified that relate specifically to the use of force with police dogs. This fact had been previously stated in the literature (Campbell, Berk, & Fyfe, 1998; Hickey & Hoffman, 2003). In fact, only two scholarly articles were identified that even addressed the concept of the police dog as an instrument of force.

Campbell et al. (1998) examined the relationship between racial composition of neighborhoods and the use of police dogs in the Los Angeles area. Forty-four percent of the suspects that were apprehended using canines were bitten by the LAPD canine unit, while 36% of the suspects were bitten by the Los Angeles County Sheriff's canines. Both agencies suffer from unacceptably high bite ratios, which for some individual canine officers exceeded 80%. However, black suspects were shown to be at less risk of dog bites than white suspects. Of particular value in this analysis were the odds multipliers from a logistic regression, which identified a number of suspect behaviors that increased the likelihood of being bitten by the police dog. Behaviors such as failing to heed warnings regarding the canine, or refusing to leave a place of concealment, increase odds of being bitten by a factor of seven and 14, respectively. Attacking the dog increases the odds of being bitten by a factor of almost 5,000.

In a similar study, Hickey and Hoffman (2003) examined canine deployments of the Montgomery County Police Department (MD) Canine Unit over a six-year period. Their study examined canine apprehension and bite rates, in comparison with officer injuries. They found that canine handlers had a significantly lower probability of being injured during an apprehension than non-canine officers. Rather than using the bite ratio, this study used a bite rate, which was defined as the number of suspects bitten per 100 apprehensions. The agency under study had a bite rate of 14.1%, which would clearly fall within an acceptable range as defined within the case of *Kerr v. City of West Palm Beach* (1989). Additionally, they found that non-white

suspects had a significantly lower bite rate, which supports the earlier findings of Campbell et al. (1998).

## Methodology

In order to determine the factors that are related to police dog use of force, this study utilized a census of dog handlers registered with the Florida Department of Law Enforcement in the State of Florida. While this sample may not be generalizable to the entire country, Florida is a large state with counties and cities ranging in both diversity and affluence.

A review of the literature did not reveal any previous attempts at collecting any data from patrol dog handlers regarding the use of force. As a result, the survey instrument for this study was constructed based upon issues identified in the extant literature and case law. Canine-related case law is broken down by topic area in Table 1.

In the first week of October 2002, the survey instrument, an explanatory cover letter, and a postage-paid self-addressed return envelope were sent via first class mail to all 334 dog handlers that comprised a census of the State of Florida. Several weeks later, a follow-up letter, a second survey instrument, and a second postage-paid return envelope were mailed to non-respondents in the first week of November 2002. Finally, emails (when available) and letters (to all non-respondents) were sent to both agency

**Table 1**   Canine Case Law.

| Reasonable canine force | Handler control |
| --- | --- |
| *Gill v. Thomas* (1996) | *Fikes v. Cleghorn* (1995) |
| *Caldwell v. Davis* (2002) | *Quintanilla v. City of Downey* (1996) |
| *Brewer v. City of Napa* (2000) | *Vera Cruz v. City of Escondido* (1998) |
| *Robinette v. Barnes* (1988) | |
| *Matthews v. Jones* (1994) | |
| *Grant v. City of Los Angeles* (1994) | |
| *Mendoza v. Block* (1994) | |
| *Fikes v. Cleghorn* (1995) | |
| *Quintanilla v. City of Downey* (1996) | |
| *Vera Cruz v. City of Escondido* (1998) | |
| Canines not deadly force | Unreasonable canine force |
| *Robinette v. Barnes* (1988) | *Chew v. Gates* (1994) |
| *Matthews v. Jones* (1994) | *Jarrett v. Yarmouth* (2002) |
| *Brewer v. City of Napa* (2000) | |
| *Vera Cruz v. City of Escondido* (1998) | |
| *Quintanilla v. City of Downey* (1996) | |
| Bite ratios | Bark versus bite and hold |
| *Kerr v. City of West Palm Beach* (1989) | *Kerr v. City of West Palm Beach* (1989) |
| *Chew v. Gates* (1994) | *Watkins v. City of Oakland* (1989) |

*Source*: LexisNexis Academic (2003).

administrators and canine handlers in the first week of December as a final reminder to encourage participation. At the conclusion of data collection, a total of 181 survey instruments (52%) had been returned.

*Study Data*

In this study, several types of data will be used. These sections include: apprehension methods, methods of training, and individual level demographics regarding the handler and dog, which are then applied in relation to the bite ratio.

*Dependent variable*
The key dependent variable for this research was the bite ratio. For researchers not familiar with the use of bite ratios as an industry standard, it might appear that canine handlers might not readily recall the amount of deployments, apprehensions, and bites within a year timeframe. However, for the canine handler, this is their lifeline. For instance, a baseball pitcher will be able to instantly recount his won/loss record because if nothing else, this is a measure of his value to the team. The same can be said of bite ratios for canine handlers. This is how their levels of force are measured.

The bite ratio is computed from the total number of apprehensions and bites from each of the utilizations (tracking, area search, building search, and fleeing suspect apprehension) and combined to form a uniform bite ratio that is comparable across agencies within the state, then it is possible to compare agencies from across the state to examine the individual, situational, and organizational correlates of canine forceful interventions (Figure 1).

Each deployment (tracking, area search, etc.) is broken down into an exact number of apprehensions and resulting bites. From this data, a bite ratio can be computed within each typology (Table 2). Although the bite ratio should not be considered the final word in measuring force with police dogs, it does act as a barometer for misconduct and measured police violence.

*Independent variables*
*Apprehension method.*   The method of apprehension in which the dog was trained is of vital importance to this study and future policy decisions. The DOJ report 'Principles

$$Bite\ Ratio = \frac{Apprehensions\ with\ Bites}{Total\ Apprehensions}$$

[a/b], where a = the number of apprehensions with bites and b = the total number of apprehensions. For example, if a canine team were to apprehend 50 suspects but during the course of arresting them 5 suspects were bitten by the dog, it could be shown as [5/50] or a 1/10 (10%) ratio.

**Figure 1**    Bite Ratio Model.

**Table 2**  Bite Ratio Data Collector (BRDC).

| Tracking | ____Apprehension | ____Bite | ____Bite ratio |
|---|---|---|---|
| Area search | ____Apprehension | ____Bite | ____Bite ratio |
| Fleeing suspect | ____Apprehension | ____Bite | ____Bite ratio |
| Building search | ____Apprehension | ____Bite | ____Bite ratio |
| Total | ____Apprehension | ____Bite | ____Bite ratio |

for Promoting Police Integrity' has promoted the adoption of the bark and hold model. However, other training issues will be examined as well. One of the critical questions that these variables seek to answer is if different training paradigms impact bite ratios.

*Training methods.*  This section of the survey examined a variety of different training concepts that could affect the future performance of police dogs. These variables can be divided into equipment and methodology related training issues. There is no previous research that has examined any of these variables.

Equipment for the training of police dogs is quite diverse and varies greatly in cost, usefulness, and availability. For persons not familiar with the large number of options available when seeking dog training equipment, an examination of the Ray Allen catalogue (www.rayallen.com) offers an overview of the state of the art in this arena.[3] Although there are a number of training options, certain key items of equipment are used with great frequency and are directly related to aggression training. These items the electric collar and bungee cord both rely heavily on negative reinforcement to pattern behavior.

Just as equipment variables used in training are important in this analysis, so are the methods of training. There are so many variations and models used to train dogs, but there are a limited number that directly relate to aggression.

Training for tracking deployments could influence bite ratios. One method of training uses the concept of agitation to stimulate interest in tracking. During the training scenario the 'offender' taunts the dog before fleeing. This stimulates a prey drive where the dog's instinctual urge is to pursue anything that runs from him (Air Force Office of Scientific Research, 1970). However, when agitation is used to stimulate interest, the reinforcing reward is the physical apprehension (bite) at the end of the track. Thus, the dog learns to expect a bite at the end of every track.

*Officer and canine demographics.*  One hundred and seventy-seven (97.8%) officers were male and 161 (91%) were white. Respondents were also asked for information regarding their highest level of education completed. Two (1.1%) described themselves as having achieved an advanced degree, while 42 (23.2%) stated that they had completed a bachelor's degree. The majority of the respondents indicated that they had completed less than a bachelor's degree as indicated by the breakdown of associates degrees (23, 12.7%), some college (99, 54.7%), and high school graduates (15, 8.3%).

Accordingly, this group of canine handlers could be classified as extremely homogeneous as most are white males that are under 37 years old, are not supervisors but have a substantial amount of experience as canine handlers. Only a small number (less than 6%) had received more than four complaints in three years.

The great majority of the 181 respondents (142, 78.5%) stated that they were utilizing German shepherds, while only 34 (18.8%) utilized the Belgian Malinois. A profile of the Florida patrol dog was then developed. Most were purchased within the continental USA at approximately two years of age for a median cost of $4,000.

Table 3 shows the factors related in canine training. Four dichotomous response questions measure specific exposure to different training paradigms. Twenty-five dogs (13.9%) were reported to have received Schutzhund (German dog sport) training, while the remainder (155, 86.1%) did not. This is surprising as the '*Bark and Hold*' model is closely linked to Schutzhund.

Slightly less than half of the respondents stated that they used either the electric collar (89, 49.2%) or the bungee (84, 46.4%). These factors make up the bulk of the equipment related variables and had actually lower usage than was predicted by the focus group. Although there is no way to know for sure, this could indicate that there are fewer dogs requiring extreme training aids being marketed to US law enforcement agencies. Less than one-third (59, 32.8%) of the respondents stated that they use agitation in foundation tracking exercises and even a smaller percentage (26.07%) concluded training tracks with a bite.

This implies that fewer dogs are actually expecting to receive a bite at the end of the track as a reward. Consequently, fewer unnecessary bites should occur. As canine handlers reported an average of 24.3 hours of training their dogs per month, it is promising that these areas indicate responsible training practices.

Cross training of the canines for specific scent operations was also captured through dichotomous responses. One hundred and twenty-four (68.5%) reported narcotics detection training, while 26 (14.4%) reported explosives training. Cadaver trained dogs were the smallest group (10, 5.5%), but could overlap into either of the other scent groups without any substantial training issues.

Table 3 also contains the identification of those canine teams trained in '*bark and hold*' vs. '*bite and hold*.' As defined earlier in this study, the '*bark and hold*' dog does not engage (bite) the suspect unless the suspect moves or actively resists. Forty-six (25.4%) of the respondents stated that their dogs were trained in '*bark and hold*' (find and bark).

Slightly less than three quarters of the respondents (135, 74.6%) reported that their dogs were trained in '*bite and hold*' (find and bite). These dogs are released under certain circumstances (often defined by policy or severity of the crime) and are under voice control of the handler. The canines trained in this method will bite a suspect on command regardless of the suspect's actions. This demographic provides a first look at the scope of the issue, should a national mandate require all dogs to be trained in '*bark and hold*.' Almost 75% of Florida's patrol dogs would need to be taken out of service and retrained, adding to the budgetary strain placed on municipal and county governments.

**Table 3**  Training Characteristics.

| Demographic information | Frequency | Percent |
|---|---|---|
| Received Schutzhund training ($n = 180$) | | |
|    Yes | 25 | 13.9 |
|    No | 155 | 86.1 |
| Use of electric collar in training ($n = 181$) | | |
|    Yes | 89 | 49.2 |
|    No | 92 | 50.8 |
| Use of bungee ($n = 181$) | | |
|    Yes | 84 | 46.4 |
|    No | 97 | 53.6 |
| Use of agitation in tracking ($n = 180$) | | |
|    Yes | 59 | 32.8 |
|    No | 121 | 67.2 |
| Percentage of tracks ending with bite ($n = 158$) | | |
|    Median | 10.0 | |
|    Mean | 26.1 | |
| Number of hours/month training dog ($n = 178$) | | |
|    Median | 20.0 | |
|    Mean | 24.3 | |
| Apprehension method ($n = 181$) | | |
|    Bark and hold | 46 | 25.4 |
|    Bite and hold | 135 | 74.6 |
| Narcotics detection ($n = 181$) | | |
|    Yes | 124 | 68.5 |
|    No | 57 | 31.5 |
| Explosives detection ($n = 181$) | | |
|    Yes | 26 | 14.4 |
|    No | 155 | 85.6 |
| Cadaver detection ($n = 181$) | | |
|    Yes | 10 | 5.5 |
|    No | 171 | 94.5 |

*Note*: Not all respondents completed every survey item.

The following regression analysis examines the training variables predicting the dimensions of bite ratio data collection. Table 4 displays the $R^2$, the unstandardized coefficients, intercept, and standardized regression coefficients for each variable. For the model, examining normal probability plots of residuals and scatter diagrams of the residuals tested assumptions necessary for regression. No violations of normality, linearity, or heteroskedasticity were noted. In addition, box plots revealed no evidence of outliers. The following model examined key training correlates in canine use of force.

The breed of the dog variable was significant. This suggests that the Belgian Malinois has a significantly higher bite ratio than that of the German shepherd. In fact,

**Table 4**  Multiple Regression of Bite Ratios by Training Variables.

| Variable | Bite ratio data | | |
| --- | --- | --- | --- |
| | B | SE | β |
| Apprehend method | −9.34 | 4.57 | −0.175** |
| Dog breed | −28.7 | 4.96 | −0.484*** |
| Narcotics dog | −5.99 | 5.25 | −0.117 |
| Explosives dog | −3.53 | 6.58 | −0.055 |
| Cadaver dog | −0.259 | 7.32 | −0.003 |
| Age purchased | −0.170 | 0.234 | −0.060 |
| Original training | −0.015 | 0.013 | −0.094 |
| Schutzhund | −12.1 | 6.12 | −0.154* |
| Electric collar | 4.27 | 3.62 | 0.094 |
| Bungee | −0.932 | 3.68 | −0.020 |
| Agitation track | −1.23 | 4.17 | −0.025 |
| Bite track | 0.009 | 0.067 | −0.012 |
| Sex intact | −3.89 | 4.87 | −0.063 |
| F | 4.25 | | |
| R | 0.538 | | |
| $R^2$ | 0.289*** | | |

*Note*: B = unstandardized coefficient; SE = standard error; β = standardized coefficient. *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

subsequent analysis reveals that the Malinois has two times the bite ratio (based upon beta and mean values), which has never been identified as an issue in past research. This may have serious policy implications in the future, as agencies may tend to avoid purchasing Malinois in an attempt to lower their force usage and consequent liability.

A number of variables were not significant predictors of canine force, such as cross training in all scent functions, equipment oriented variables, and specific training methods.

Cross training dogs to do scent related functions, such as narcotics or explosives detection, did not significantly increase or decrease bite ratios. Similarly, the use of the bungee and the shock collar has no predictive value as well. Their use seems to be evenly distributed between dogs and handlers reporting both high and low levels of force. Finally, there appears to be no relationship between higher levels of force and the use of agitation in tracking training. It had been suggested that by stimulating the prey drive of the dog in foundation tracking or by rewarding the dog with a bite on a protective sleeve at the conclusion of a track would significantly increase later force levels. Had this been the case, a simple solution to reduce force levels would be to slightly modify training scenarios. As this is not the case, trainers and handlers may still use this shortcut to increase the performance of their canines without later suffering from high bite ratios as a result.

Officers with sexually intact dogs reported lower mean bite ratios (8.49) than officers with dogs that had been 'fixed' (13.18). It is unclear what factors are in play that could produce that outcome. Since the data also indicate that 'fixed' dogs are not a correlate of force, agencies and handlers should consider this procedure on a case-by-case basis and not as a matter of policy.

Relying on these findings, it is clear that '*bark and hold*' dogs will produce much higher bite ratios than '*bite and hold*.' Again, this is contrary to the findings of the DOJ and has serious implications for the future.

**Summary and Discussion of Findings**

Using the data from Florida canine handlers, *bite and hold* dogs had lower mean bite ratios (15.7) than bark and hold trained canines (22.4) and there was a statistically significant difference between the two apprehension methods. Consequently, any mandated changes in apprehension training are not a feasible solution to combat canine use of force issues. This may seem odd; dogs trained in what was perceived as a reduced level of force actually generating higher levels of force. However, several concepts may better explain how this is so.

First, the data do not capture the length of time that each dog has been trained within the apprehension method. Many of the '*bark and hold*' trained dogs could have started out as '*bite and hold*' and been transitioned into the opposing paradigm, as a result of legal action or unacceptable bite ratios. In either case, a canine with previous behavior problems, such as inappropriate levels of aggression, will likely continue to have high bite ratios regardless of training.

The second and more likely concept is handler related. It may be that canine handlers with '*bark and hold*' dogs may be deploying their canines under circumstances where bite and hold dogs are not. In this scenario, the handler is allowing his or her canine to operate freely in a wider variety of conditions and relying on the training to provide a framework for the dog to make decisions. It is unreasonable for a human officer to rely upon the decision-making abilities of a dog, no matter how well trained. Law enforcement agency policy should clearly define the acceptable and non-acceptable deployments for their canines. Although many handlers may feel that they are in the best position to determine appropriateness in deployment of their canines, agency administrators ultimately have the final word and should guide their personnel through unambiguous policies and general orders.

A multiple regression model was calculated to identify the likely correlates of canine force. Using data collected by the Bite Ratio Data Collector (BRDC), three principle training factors were identified.

First, the breed of the dog was a significant predictor of canine force. The Belgian Malinois had a much higher bite ratio than the German shepherd. Although many agencies successfully use this breed without incident, agencies without experienced handlers and trainers might choose a less aggressive breed, such as the German shepherd. However, this decision should be made on a case-by-case basis, and not viewed as a theoretical moratorium on specific breeds in law enforcement.

Second, the apprehension method became a significant predictor. When placed in the regression model and controlling for the other factors, '*bark and hold*' trained dogs were predictive of canine force. Therefore, the data suggest that the current model of '*bite and hold*' is less damaging than shifting to the '*bark and hold*' paradigm. This is reassuring as the impact upon the canine community would be staggering if this were not the case. This finding is of significant importance as it does not support the position of both the DOJ and the IACP.

Third, the presence of Schutzhund training in the dog's background was found to reduce bite ratios. Schutzhund is a method of rating dogs that are performing a series of complex functions. All competitions are off-lead and the dogs are under the voice control of the handlers. To perform at this level requires a great deal of training and discipline. These dogs are under handler control and are not required to make complex decisions. It is not surprising that the additional training and subsequent control over the dog has a direct impact on later use of force.

## Conclusion

Overall, the findings of this study indicate that mandating a massive paradigm shift for training police service dogs is both unwarranted and potentially damaging. If one were to simply compare the bite ratios for canines trained in both apprehension methods, it is clear that bark and hold does not produce the panacea as it has been advertised. In theory, a dog trained to contain the suspect without causing injury is a noble proposition and seemingly the answer to many problems. Unfortunately, this is not the case. The decision to use force is a complex and dynamic issue, best suited to the handler and not the dog. While police dogs can be trained to do amazing things, it is unrealistic to expect them to decide which actions warrant force and which ones do not. Regardless of training methodology, the handler alone is responsible for the force delivered by his four-legged partner.

## Notes

[1]    The complete text of 'Principles for Promoting Police Integrity' can be found online at http://www.ncjrs.org/pdffiles1/ojp/186189.pdf
[2]    The terms 'find and bark' and 'bark and hold' are used interchangeably.
[3]    The Ray Allen Company is viewed as the industry leader in police dog equipment and supplies.

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