

# Canine Aggression - VT VMA - Feb 2023

Pamela J. Perry, DVM, PhD  
[dppdvm89@hotmail.com](mailto:dppdvm89@hotmail.com)

## Dog Bites

- ~4.7 million Americans bitten each year
- 80% are bitten by a familiar dog (on owner's property)
- ~800,000 injured/year
- 47 dog bite-related deaths in the US in 2019
- Children are the most common victims (ages 5-9 yr.)

## Aggression

- **Definition:** “*Threat or harmful action directed towards another*”
- Usually is a normal behavior
- Some consider it abnormal if too intense, too prolonged, or absence of appropriate trigger
- Can be complex and confusing to define

## Criteria for Aggressive Behavior

- Should have potential to cause injury or damage to another individual
- Intentional
- Aversive to the victim
- Includes physiologic arousal in aggressor (predatory?)
- All are necessary, but not sufficient alone to constitute aggression

## Aggression

- Interplay between:
  - **Biological factors:** genes, neurotransmitters, neural circuits, hormones, etc.
  - **Context** in which animal finds itself: space, individual(s), resources involved
  - **Experience and learning:** previous conflict or exposure to individual

## Breed Predisposition?

- Emergency rooms:
  - Rottweiler
  - German shepherd
  - “Pit bull”
- Behavior specialists:
  - English springer spaniel

- Owner survey:
  - Dachshund
  - Chihuahua

### **Sex and Aggression**

- Human-directed
  - Male dogs > female dogs?
- Inter-dog aggression
  - Spayed females
  - Intact males
- Be careful recommending spaying or neutering to decrease aggression / anxiety

### **Early Development**

- 4-14 weeks socialization period
- Lack of exposure to humans, dogs, cats, etc.
- Fear-producing experience
- Orphans
- Juvenile illness

### **Classification in Canine Aggression**

- No DSM for applied animal behavior
- **Target:** Victim (human, canine, other)
- **Function:**
  - *Broad:* defensive vs. offensive; affective vs. non-affective
  - *Specific:* fear; conflict; pain-induced; territorial; status

### **Aggression Classification**

- Try to label in clinical setting, but may not have biologic relevance
- May be some distinct neural pathways involved (predatory, fear, inter-male), or some overlap
- ***Fear and/or anxiety underlies VAST majority of cases***
- Motivation does ***not*** greatly influence treatment method

### **“Dominance” Aggression**

- Is it accurate to apply “dominance” to inter-species relationships?
- Myth: Problem behaviors are due to dogs striving to achieve higher rank and they must be “put in their place”
- Reality: *Most aggression is associated with fear or conflict behaviors* (e.g., defensive aggression, appeasement behavior after episode)
  - Offensive body postures often start as defensive aggression
- Dominance is NOT a personality trait

### **Aggression Diagnosis**

- Target or victim – family members, unfamiliar people, child in home
- Body postures (past and present)
- Context
  - High-value toy/food/person present
  - On/off property
  - Couch/bed
  - Lot of excitement/visitors
  - Reaching over dog, etc.
- Age of onset; signalment; experience and behavior as a puppy
- Overall health / medical problems
- Temperament / body language / vocalizations
- Stimulus or trigger / situations and context in which aggression is displayed
- Owner responses
- Motivation
- Progression of behavior

### **Conflict Behaviors**

- Signals that appear to be out of context
  - Lip-licking
  - Yawning
  - Looking away
  - Mounting
  - Self-scratching
  - Other displacement behaviors (e.g., head shaking, spinning)
  - Aggression

- Contradictory behavior — e.g., approach/withdrawal (want to interact, but apprehensive about owner’s reaction)
- Result of anxiety, frustration, inconsistent and unpredictable interactions and environment, and lack of control
- (Luescher & Reisner: Vet Clinics N. Amer., 2008)

### **Risk Assessment**

- Indicators of *poorer* prognosis:
  - Home with young children, elderly, or disabled
  - Large-sized dog
  - Owners unable to predict triggers
  - High intensity (bites vs. snarls) / severe injury
  - Benign context (vs. pain, redirected, or other “understandable” situations)
  - Aggressive behaviors (not play biting) in puppy
  - Predatory aggression

### **Treatment Overview**

#### **Environmental Management**

- *Ensure safety of everyone!*
  - Avoid situations that elicit aggression
  - Teach owners to read dog’s body language
  - Separate or confine dog
  - Basket muzzle and/or head halter

#### **Behavior Modification**

- *Leadership training*
  - Structure all interactions so they are consistent → creates predictable consequences; control
  - Dog should sit calmly for all interactions and rewards
  - Ignore attention-seeking behavior
  - Do NOT punish
  - Lays groundwork for teaching dog to focus on owners in distracting situations
- *Counterconditioning / Desensitization*
  - Teach dog to perform behavior incompatible with being aggressive (e.g., sit, down, or focus)
  - Work just outside dog’s threshold for aggression
  - Target present = dog gets treats; no target present = no treats
  - Ensures that every encounter with target (person or other animal) is pleasant
  - Progress slowly (so no aggression occurs)

### **Medications / Diet / Supplements**

- Drugs – SSRIs
  - May help decrease arousal, impulsivity, and reactivity
- Diet therapy
  - Low protein diet
- Supplements
  - Tryptophan
  - Neutraceuticals affecting gabanergic, adrenergic, and serotonergic systems
  - Synthetic pheromones

### **Tools**

- Muzzles – basket style preferred
- Desensitize and countercondition dog to muzzle *before* it is needed
- Can wear it for hours – able to pant, drink
- Muzzle Up! Project: <https://muzzleupproject.com/>

### **Use of Fear or Pain as Punishment**

- With affective aggression, can make fear and, therefore, aggression worse
- May be successful in suppressing aggressive behaviors, but not in changing motivation
- May suppress low level warning behaviors (e.g., growling) → silent biter
- Potential for redirected aggression towards owners
- *Unethical* as advice in clinic setting

---

### **Aggression Towards Humans**

- Fear-based
- Resource guarding
- Conflict-related
- Territorial
- Predatory
- Redirected
- Pain-induced
- Maternal
- Irritable aggression (disease-induced)

### **Owner-directed Aggression (Adults)**

- Resource-related
  - Food-related most common
  - Toy, resting place (couch, dog bed), specific person
- Fear and/or conflict-related
  - History of inconsistent (aversive) interactions with dog
- Pain-induced
- Maternal, redirected, idiopathic, pathophysiologic, learned

### **Treatment**

- Avoid triggers
  - Remove all long-lasting, animal-based items (replace with appropriate non-food chews)
  - Contain high-value items (dog beds, furniture, food bowl) behind closed door
  - Devise containment plan for dog (e.g., confine in crate/bedroom during busy times of day)
  - Teach “Drop It” and “Leave It” commands
  - *No chasing, yelling, spanking, etc.*
- Relationship builder
  - Leadership training – humans are the gatekeepers to *all* resources; no force needed
  - Sets up reward-based, CALM control – aggression occurs in state of arousal
  - Creates consistent interactions
  - Dog must sit before allowed on furniture by owner

### **Tools**

- Head halter
- Muzzle
- Baby gates

### **Medications**

- Serotonin-enhancing medications are first line drugs of choice
  - Safety and behavior modification *must* be implemented
  - Medications are only an *adjunct* to treatment
-

### **Aggression over Resources**

- Avoid!
- Lure vs. force
  - Teach “Drop it” and “Leave it”
  - Teach dog to get off furniture on command BEFORE aggression occurs – use upbeat voice and food lures
  - Leadership training (say “please” by sitting before allowed access to these items)

### **Aggression over Human**

- Do not allow dog on high places or let sleep directly in front of the guarded person
  - Target person calls dog away from guarded person for a treat BEFORE walking into the room (differential reinforcement of an alternative behavior)
  - Negative punishment – “abandonment” protocol (guarded person leaves room)
- 

### **Children and Dogs**

- Fear-related / Conflict-related
  - Loud
  - Jerky movements
  - Stare at dog; at eye level
  - Unpredictable & inappropriate interactions (hug; grab; pull fur; trap dog)
- Resource guarding
- Infant-directed – occasionally predatory

### **Aggression to Children**

- **Constant supervision!**
- Avoid!
  - Give dog a “save haven”; teach dog to go there on cue
  - Basket muzzle
  - NO chews, valued toys, furniture, etc. unless physical barrier between dog and child
- Encourage flight vs. fight – call dog away when giving low level stress signals (lip licking, yawning, etc.)
- Make sure dog is never trapped
- Remain calm
- Good classical conditioning:
  - NO punishment (want warning signals!)

- Lots of treat tossing; save best treat for child interactions
- Older children can be taught how to interact with dogs appropriately
- Have children participate in CC/DS:
  - Dog wearing head halter; child with adult just beyond threshold distance
  - Ask dog to obey commands while giving treats
  - Walk dog closer to child, serpentine pattern (not straight)
  - Switch so dog is in a down/stay and child is moving closer (as giving dog treats)
  - Pressure on nose loop (of head halter) if dog lunges or barks
  - Immediately release pressure and give food reward when focus is back on owner
  - Bonus (jackpot of treats) in initial stages when dog looks at child then looks back at handler

### **Child and Dog Resources**

- [Dog Safety](#)
  - [Family Paws](#)
  - [The Blue Dog](#)
  - [Baby safety around dogs](#)
  - [I Speak Doggie](#)
  - [Dog Body Language](#)
- 

### **Aggression to Unfamiliar People**

- **Visitors to home**
  - Territorial and/or fear
  - Often show fearful or ambivalent behaviors off territory, but more offensive on property
- **Strangers off property**
  - Fear-related

### **Aggression to Visitors**

- Avoid
  - Block view of street/front door
  - Keep behind closed door, especially during excitement of greeting; give dog something else to do (food toy)
- Relationship builders – give dog control (choice)
  - Leadership training
  - Appropriate greetings



- Tools
  - Head halter
  - Baby gate
  - Fence, NOT electric fence (or at least away from door)

## **Don't Invade Space!**

### **Avoid Threat Signals**

## **Behavior Modification**

### **Desensitization & counterconditioning**

- Teach to go to “place” on command
  - When calm, lure dog to mat with treat → only give treat when dog lies down on mat
  - Habituate to doorbell/knocking
  - With dog on leash (attached to head halter), have familiar person ring bell/knock → say “place” → reward
- By communicating what you want dog to do, not just what you don't want him to do, results are longer lasting
- Use classical conditioning with visitors – every experience should be positive

## **Aggression to Strangers off Property**

- Avoidance
  - Exercise in low traffic areas at less busy times
  - Do NOT let people approach
  - Have an escape command (“let's go”) – U-turn
- Relationship builders – make sure dog is reliable with cues (“look”, “sit”) for control outside home
- Tools – head halter and basket muzzle

## **Skateboards, Bikes, Runners**

- Motivation?
  - Fear
  - Predatory
- Appropriate control
- Desensitization and counterconditioning