



# Veterinary Behavior Medications: A Summary for Vet Students



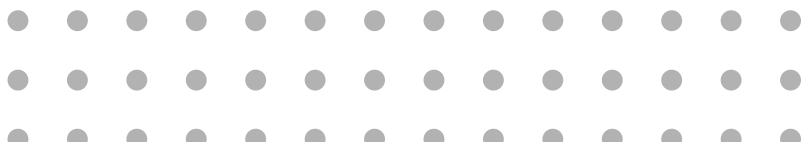


Behavioral issues are a daily concern in small animal practice. Some owners are aware of their pet's behavior issues; they may schedule an appointment specifically to address these concerns or mention them during a routine wellness visit. Other owners are unaware that their pet's behavior is abnormal until a member of the veterinary team mentions it. Regardless of how these issues are introduced, however, you must work with clients to arrive at a solution that supports the human-animal bond.

Clients often initiate behavioral conversations with a request for medication. They have been conditioned to think of medication as a quick fix for a wide variety of ailments and behavioral concerns are no exception.

In reality, though, successfully addressing behavioral issues also requires behavior modification. Medication alone rarely provides the quick fix that your clients are seeking (except in issues related to isolated events, like veterinary visits). The primary function of medication is to help “take the edge off,” so that the pet will be more amenable to behavior modification.

In order to prescribe medication, you need a diagnosis. Before administering any medication, you must first obtain a thorough history, perform a physical exam (unless the pet is extremely aggressive), and formulate a working diagnosis. Document these steps in your medical record.



# Psychotropic Drug Classes

There are several classes of psychotropic drugs that are commonly used in veterinary medicine. Drugs within a particular class share similar outcomes and side effects. In many cases, there are one or two specific drugs within a class that are most commonly used for a given species.



## Benzodiazepines

Benzodiazepines facilitate the transmission of alpha-aminobutyric acid (GABA) in the brain. This decreases anxiety, muscle tension, memory, and seizure activities. Benzodiazepines have a rapid onset of action, making them ideal for use as an event drug. Dogs with noise phobias or separation anxiety may be a candidate for a benzodiazepine. In veterinary patients, alprazolam is the benzodiazepine that is most commonly used to treat anxiety.

Benzodiazepines can cause paradoxical excitation, in which the pet becomes more agitated on the medication than they were prior to the medication. If this happens, a higher dose or a different medication should be attempted. Additionally, benzodiazepines can disinhibit aggression. Owners must be warned of both of these effects before administering benzodiazepines. Ideally, owners should give these medications a “trial run” on a non-stressful day before attempting to use them in a stressful situation.

Other potential side effects of benzodiazepines include ataxia and insomnia. Contraindications include liver disease, kidney disease, pregnancy, and glaucoma.

Benzodiazepines are controlled drugs, with the potential for human abuse. These drugs should be prescribed with caution and non-controlled alternatives should be considered when possible.



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## Tricyclic Antidepressants (TCAs)

The TCAs affect numerous neurotransmitters, resulting in anxiolytic, anticomulsive, and antidepressant effects. These drugs typically take 6–8 weeks to take effect, so they are used for the long-term treatment of anxiety disorders. Clomipramine is most commonly used in dogs, because it has limited side effects and there is a labeled formulation available for this species. Amitriptyline is also commonly used, because of its antihistaminic and analgesic effects.

Side effects of TCAs include disinhibition of aggression, urine retention, constipation,

sedation, ataxia, cardiac arrhythmias, tachycardia, and blood pressure changes. Some pets may also demonstrate an increase or decrease in appetite. This class of medications should be avoided in pregnant or lactating females and in animals with a history of seizures, heart disease, or hypothyroidism. Additionally, TCAs cannot be administered to pets receiving monoamine oxidase inhibitors (MAOIs) such as amitraz or selegiline.

If a TCA is to be discontinued, gradual tapering is recommended.

## Selective Serotonin Reuptake Inhibitors (SSRIs)

The use of SSRIs leads to increased serotonin levels in the synaptic cleft. This leads to decreases in anxiety, compulsive behavior, and depression. Like TCAs, these medications take time to have an effect; benefits are typically seen within 4–6 weeks. Fluoxetine is the most commonly used SSRI for veterinary patients.

The most common side effects of SSRIs are anorexia and sedation. These side effects usually decrease with continued use. Other, less common, side effects include constipation, diarrhea urine retention, anxiety, and tremors.

Like TCAs, SSRIs should be avoided in patients receiving MAOIs. Additionally, doses should be reduced in pets that are also receiving TCAs or benzodiazepines. These medications should be avoided in pregnant or lactating females, geriatric pets, or pets with kidney disease, liver disease, glaucoma, or diabetes. Also, like any other psychotropic medication, SSRIs may lead to disinhibition of aggression in some pets.

Like TCAs, SSRIs must be tapered gradually if discontinued.

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## Serotonin Modulators

The most commonly-used serotonin modulator in veterinary medicine is trazodone. This medication is both a sedative and an anxiolytic, making it ideal for a number of situations such as veterinary visits (in fearful/aggressive patients), travel, and postsurgical confinement.

Trazodone should be avoided in pets that are currently receiving other serotonergic agents or CNS depressants. Additionally, trazodone should be avoided in pregnant or nursing females and in pets with hypotension or cardiac disease.

## Phenothiazines

These drugs have an overall depressant effect on the brain, resulting in sedation and muscle relaxation. It is important to note, however, that these drugs do not treat anxiety. Therefore, the most appropriate applications for acepromazine (a commonly used phenothiazine in veterinary practice) is as a preanesthetic agent or as an adjunct to restraint.

Acepromazine is not recommended for the treatment of noise phobias, separation anxiety, or other anxiety-related issues. Additionally, it should be avoided in geriatric pets, pregnant females, and pets with a history of seizures, cardiac disease, renal disease, or hepatic disease.

## Azapirones

Buspirone is an azapirone. These drugs alleviate anxiety by exerting a serotonergic effect. Buspirone can be used to address anxiety-related issues in both dogs and cats, but this medication is most commonly used in feline behavioral issues.

Side effects are rare, but may include restlessness, vomiting, and diarrhea. Like other anxiolytics, buspirone can also potentially lead to disinhibition of aggression. Buspirone should not be given in conjunction with MAOIs inhibitors. It should also be avoided in cats receiving methimazole, as it may interact with the action of that medication.<sup>1</sup>



<sup>1</sup>Overall K. 2002. *Stress of indoor cats: environmental enrichment for indoor cats and modifying related behaviors and environments*. Presented at AAFP 2002 Fall Meeting

# Psychotropic Medications in Practice: Commonly-Utilized Options

Although there are many available medication options for managing behavioral problems, many veterinarians gravitate towards a small subset of these medications. These medications are often those that have been most widely studied in a particular species and have been shown to offer the most benefit for common scenarios.

## 5 Common Behavioral Drugs in Dogs

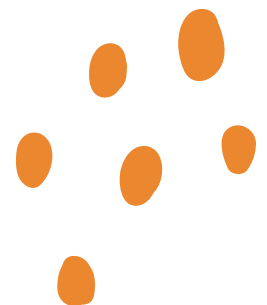
Drug Name	Drug Class	Indications	Oral Dosage
Alprazolam	Benzodiazepine	Fear or anxiety, especially situational anxiety (i.e., travel) where rapid onset and short duration is desired	0.02–0.1 mg/kg q4hrs
Clomipramine	Tricyclic antidepressant	Anxiety; compulsive disorders; may have some anti-aggressive effects but these effects are unpredictable	1–3 mg/kg q12hrs
Fluoxetine	Selective serotonin reuptake inhibitor	Anxiety; compulsive disorders; may have some anti-aggressive effects but these effects are unpredictable	1 mg/kg q24hrs
Trazodone	Serotonin modulator	Anxiety, especially situational anxiety (i.e., veterinary visits, separation anxiety, travel) where rapid onset and short duration is desired	2–5 mg/kg q8–24hrs or 1hr before stressful event
Acepromazine	Phenothiazine	Sedation (NO anxiolytic effects)	0.5–1 mg/kg q6–8hrs

In dogs, the most common behavior problem in general practice is anxiety. This anxiety may be generalized or situational (for example, a dog that is only fearful at the veterinary clinic). Medication recommendations for these two types of anxiety differ: generalized anxiety requires an everyday maintenance drug, while situational anxiety can be addressed with an event drug. Although acepromazine is not recommended for anxiety because it has no anxiolytic effects, it's important to also be familiar with its use. It is still commonly utilized in many veterinary clinics and your clients may ask for it by name.

## 5 Common Behavioral Drugs in Cats

Drug Name	Drug Class	Indications	Oral Dosage
Amitriptyline	Tricyclic antidepressant	Anxiety; compulsive disorders; urine marking; psychogenic alopecia; hypervocalization	0.5–2 mg/kg q12–24hrs
Fluoxetine	Selective serotonin reuptake inhibitor	Anxiety; urine marking; compulsive disorders	1–2 mg/cat (NOT mg/kg) q12–24hrs
Buspirone	Azapirone	Anxiety; urine marking	0.5–1 mg/kg q12hrs
Gabapentin	Unknown mechanism	Fear or anxiety, especially situational anxiety (i.e., veterinary visits, travel) where rapid onset and short duration is desired	20 mg/kg 1hr before stressful event
Acepromazine	Phenothiazine	Sedation (NO anxiolytic effects)	0.5–1 mg/kg q6–8hrs

Like dogs, cats can also display anxiety. In many cats, however, this anxiety manifests as a specific behavior, such as urine marking or overgrooming. Amitriptyline, fluoxetine, and buspirone have all been shown to reduce anxiety and urine marking in cats. Amitriptyline also has benefits in the treatment of psychogenic alopecia, perhaps due to its antihistaminic effects. Gabapentin is commonly used for situational anxiety associated with veterinary visits or travel. Acepromazine is rarely recommended in cats but is still commonly utilized by some practices.





## A Note About Extra-Label Use

Many drugs used to address behavioral issues in pets are used in an off-label manner. Before using these drugs, clients must provide informed consent. Additionally, you should obtain a complete blood cell count and serum biochemistry on your patient before beginning extra-label medications. These blood tests should be repeated every 6–12 months for as long as the pet remains on the medication.<sup>2</sup>

## Set Realistic Expectations

Although psychotropic medications play an important role in the management of many behavioral issues, it is important to set realistic expectations for your clients. Clients must understand that medication is intended as an adjunct to behavior modification, not as a sole therapy. Without behavior modification, benefits associated with medication will likely be minimal and short-lived.

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<sup>2</sup> Melese, P. 2014. Rational Use of Behavioral Medications in Veterinary Practice. Presented at Wild West Veterinary Conference, Reno.



### About the Author

Cathy Barnette is a practicing small animal veterinarian, freelance writer, and contributor to VetPrep and VetTechPrep. She is passionate about both veterinary medicine and education, working to provide helpful information to veterinary teams and the general public. In her free time, she enjoys spending time in nature with her family and leading a Girl Scout troop.