

How Does Fear, Anxiety and Stress Affect Behavioral and Physical Health in Your Patients?

Wailani Sung

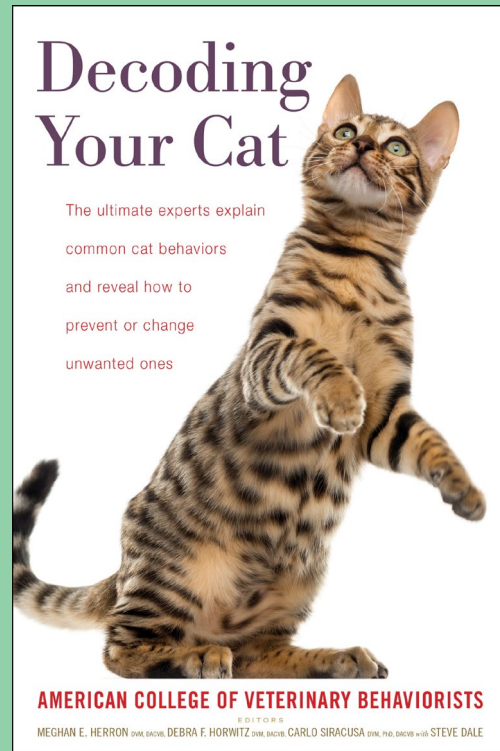
MS, PhD, DVM, DACVB



**CVM
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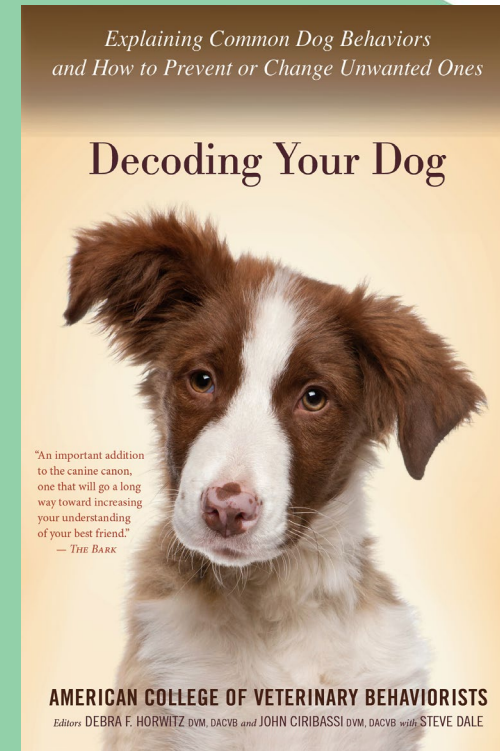


WRITTEN BY THE LEADING EXPERTS FROM THE AMERICAN COLLEGE OF VETERINARY BEHAVIORISTS



To learn more, visit:

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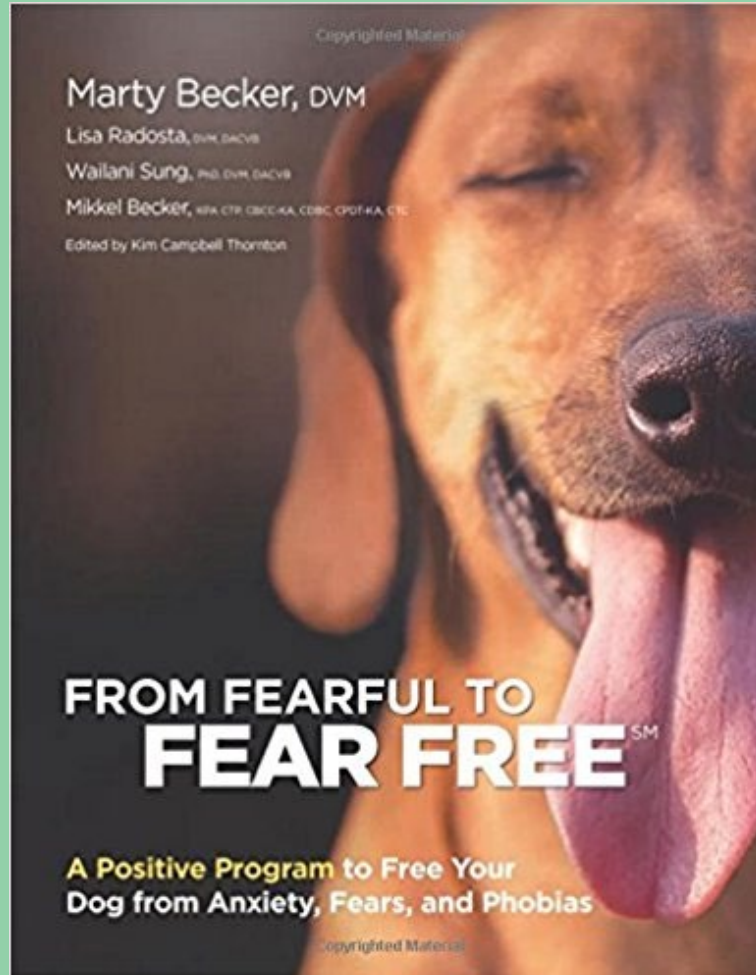
hmhbooks.com/shop/books/Decoding-Your-Dog/9780544334601



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Recommended Reading for Clients & Staff



<http://amzn.to/2mCT3ZQ>



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Fear and Anxiety



- Affects 23 million dogs in the U.S.
- Behavior problems are usually the reason pets are relinquished to shelters
- If left untreated, fear and anxiety worsens as the patient ages

What is Fear and Anxiety?



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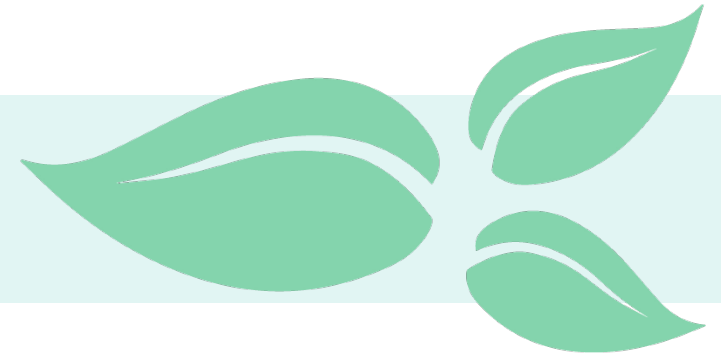
Fear – an emotional reaction of apprehension and fright due to the actual presence of the very thing the animal is afraid of

Anxiety – an emotional reaction of apprehension or uneasiness to an anticipated danger or threat



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Stress Coping Ability



- **Stress** - the sum of the body and mind's reactions to anything that disrupts our normal baseline state of functioning.
- Influenced by the pet's genetics, previous experiences and socialization.
- Other factors that influence an individual's response is:
 - the severity of the stress
 - the duration of the stress
 - the predictable of the stress
 - whether or not the pet perceives it to be escapable.



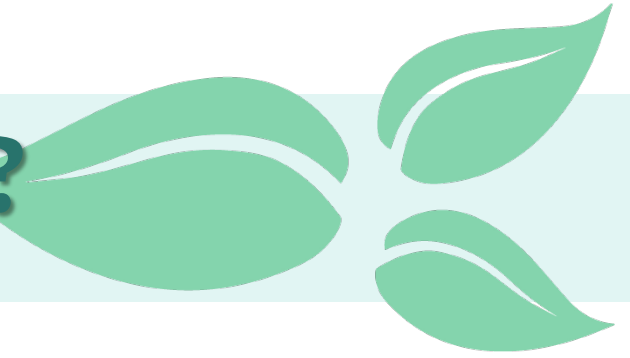
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Why is there an increase in anxious behavior?

- Lack of Socialization during COVID
- Change in normal routine
- Owners are home all the time
 - More opportunities to solicit attention
 - Owners' behaviors are disruptive to resting periods
- Noise all the time from owners and neighbors
 - Day and Night
- Failure of internal coping mechanisms

Why do we need to address FAS?



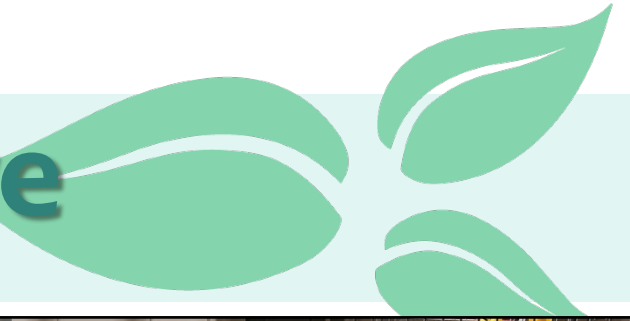
Fear, Anxiety and Stress (FAS) contributes to:

- Suppressed immune system
 - Increased risk of infectious disease
- Increased gastrointestinal upset
- Behavior problems
- Decreased welfare for our patients

Reading Body Language to determine FAS



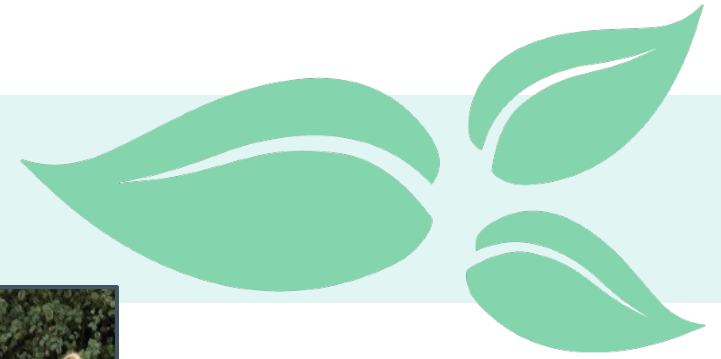
Overall Body Posture



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Haircoat



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Eyes



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Ears



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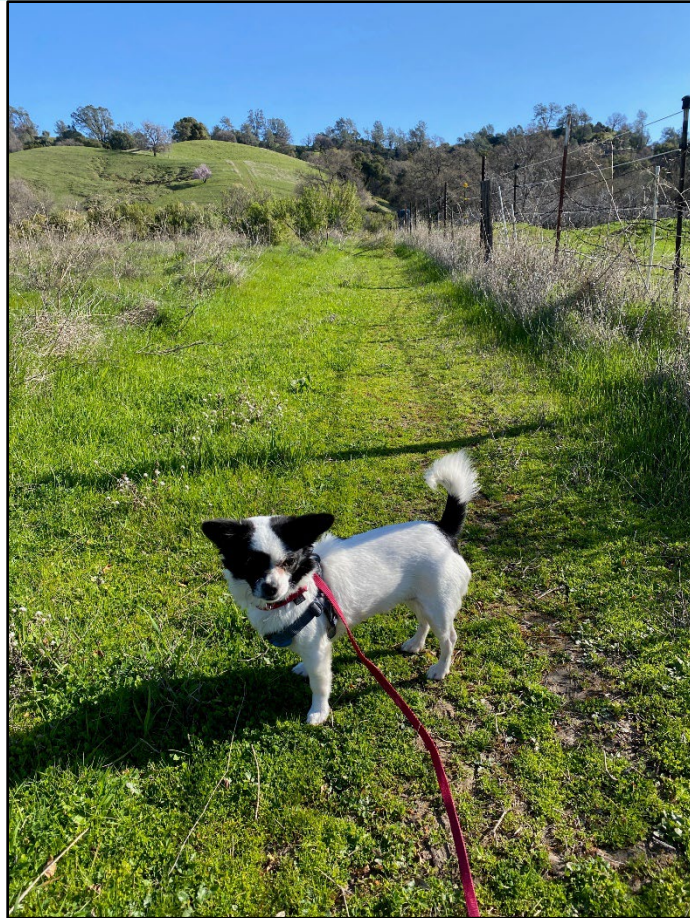
Mouth



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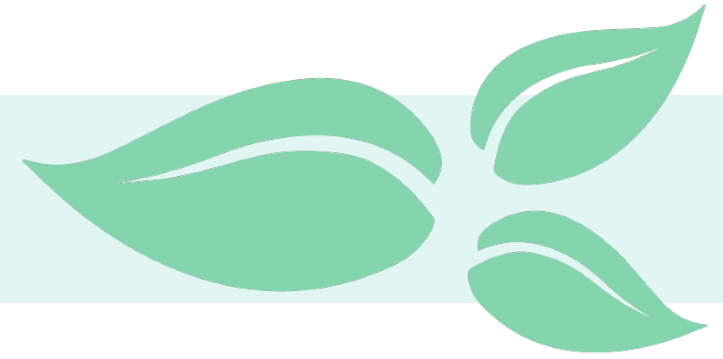
Tail



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Tail Wagging



- Signals a willingness to interact
 - In either a **friendly** or **aggressive** manner
- Always look at the rest of the body to determine the message the dog is communicating

Overall Body Posture



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Haircoat



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Eyes



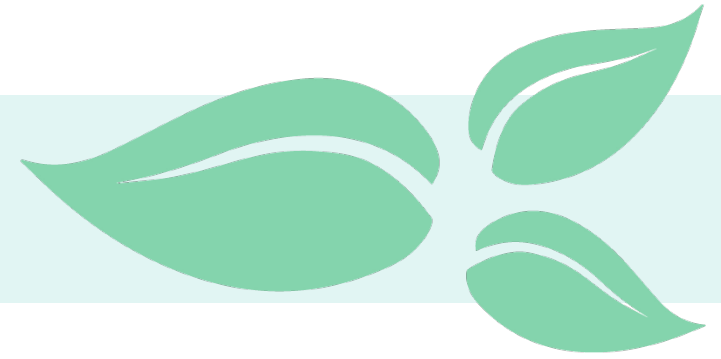
Dilated pupils



Normal



Ears

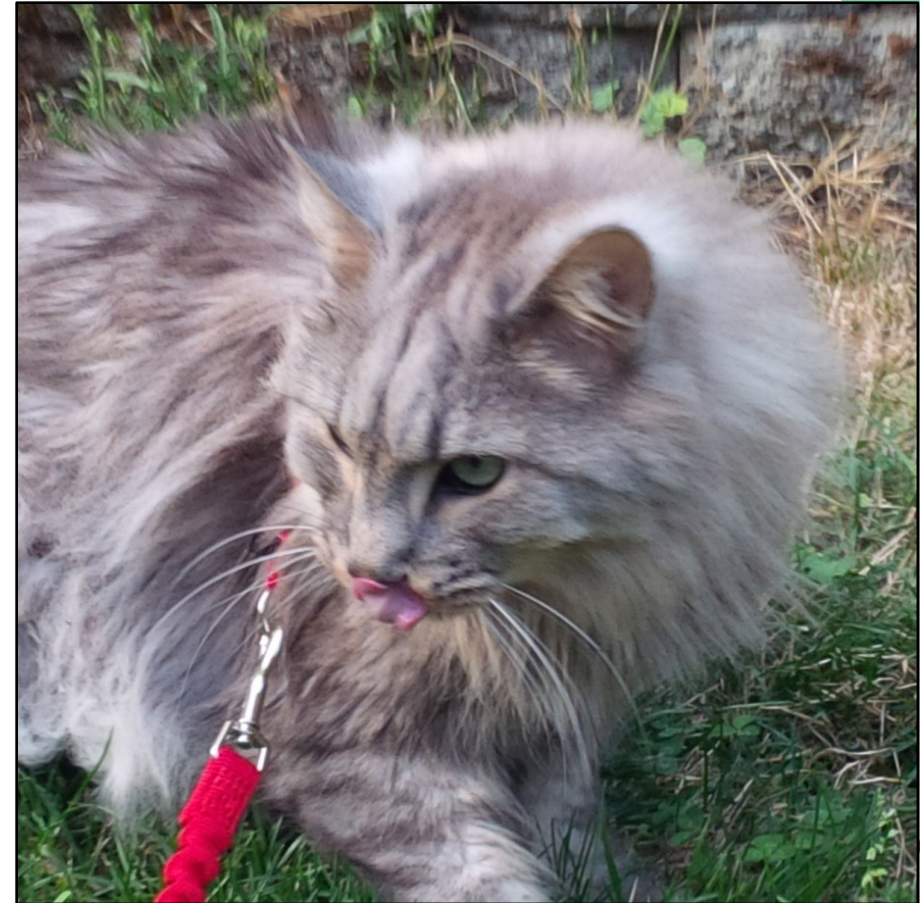


Averted to the side

Forward



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Tail



Relaxed



Tucked



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When exposed to a threat/stress:



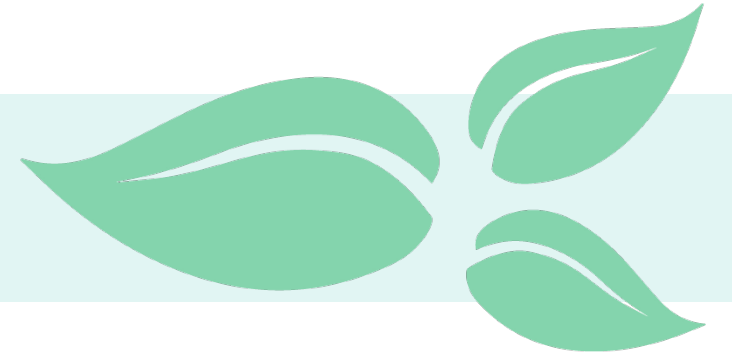
- The hypothalamic-pituitary-adrenal axis
- Sympathetic nervous system



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Behavioral Disorders



- Generalized anxiety disorder
- Compulsive disorder
- Panic attacks
- Phobia
- PTSD
- Impulsivity (Impulse control problem)

Relationship between stress and disease



In humans, dogs, cats:

- Gastrointestinal
- Urinary
- Dermatological
- Respiratory
- Cardiovascular
- Growth/Reproduction



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Gastrointestinal Stress Response

- Decreased parasympathetic tone
 - Decreased salivation and blood flow
- Increased sympathetic outflow
 - Decreased gut motility



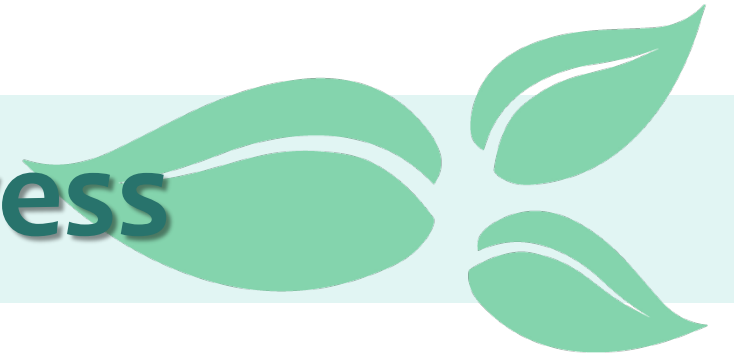
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Urogenital Response to Stress



- Bladder permeability affected
- In cats, occurrence of interstitial cystitis (FIC)
- In dogs, housesoiling

Dermatological Stress Response



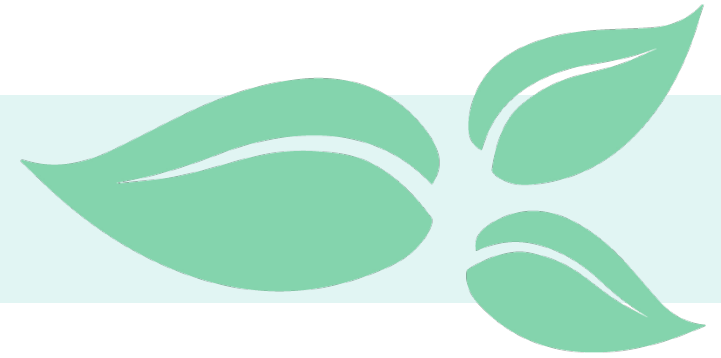
- Stress increases epidermal permeability



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Metabolic Stress Response



Physiological cost to the animal

- Break down of stored fats and protein to glucose
- Increased risk of myopathy

Cardiovascular Stress Response



- Sympathetic nervous system
 - Increased heart rate
 - Hypertension



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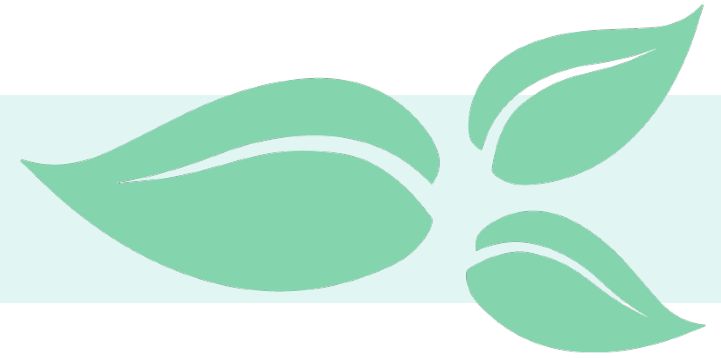
Effect on Growth/Reproduction

Reproduction, growth and tissue repair are inhibited

- Smaller offspring
- Decreased litter size



Immune Stress Response



Immunosuppression

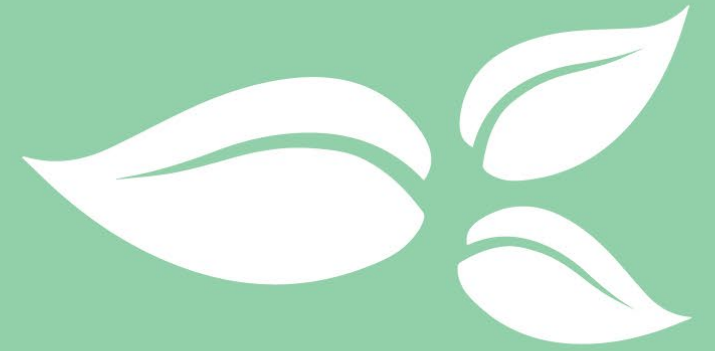
- Increased amounts of glucocorticoid
 - Inhibits release of cytokines
 - Delay maturation of lymphocytes
 - Destruction of some lymphocytes
- Oxidative damage to the body
- Altered response to vaccinations
- Influence susceptibility to sepsis

Hekman et al, 2014; *Animals*



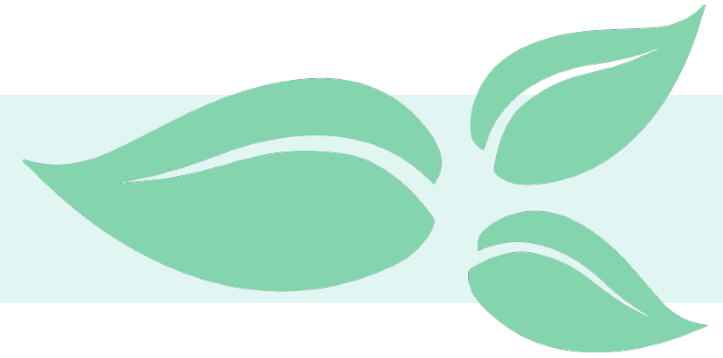
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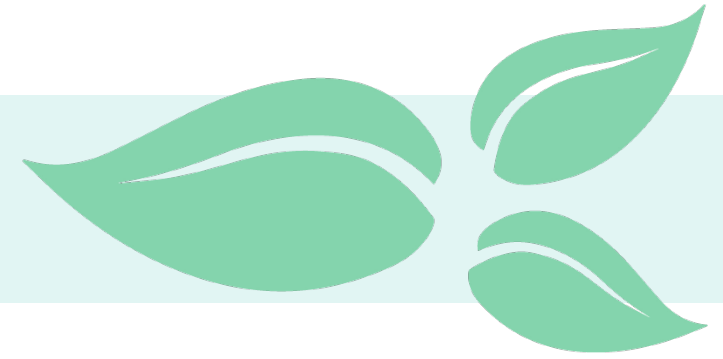
Treatment

Prevention of Fear



1. Socialize early in life
 - Sensitive period in dogs: **3-12 weeks**
 - Sensitive period in kittens: **2-7 weeks**
2. Reward desirable behavior
3. Provide appropriate outlets
 - Mental and physical
4. Environmental control
5. Use of behavioral products to help facilitate adaptation

Consistent Daily Routine



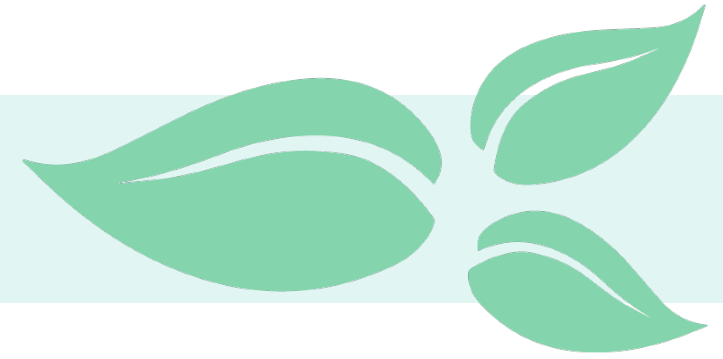
- Provide time for exercise
 - Minimum 30 minutes a day: walk, run, hike
- Provide time for rest away from family
 - Minimum 30-60 minutes a day in another room or designated quiet location
- Provide play time
 - Interactive time with the owner
 - Solo play with toys or puzzle toy to work for treats
- Provide 5-15 minutes of training
- Video and telephone calls
 - Modulate your voice
 - Find a location away from your pet



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Avoidance



Prevent or reduce exposure to triggers

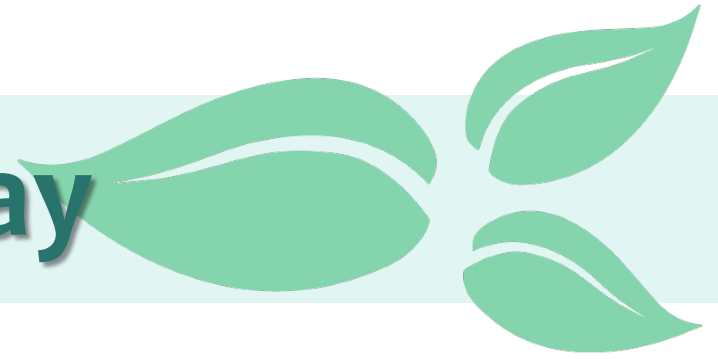
- Use visual barriers
 - Pull blinds down to prevent barking at people & dogs walking past the house
- Walk on quieter streets or later in the day
- Do not approach or touch the pet when they are lying down or sleeping
- Place pets in another room when visitors are at the house

Safety



- Supervise time spent with children or other family members the pet has issues with
- Set up protected areas, such as a safe place for the pet to retreat to where he will not be disturbed
- Dogs: train to wear basket muzzle
- Use pet gates, tethers, exercises pens or other rooms

Management During the Day



- Interactive toys
 - Provides mental stimulation
 - Object play - work for food
- Play calming music
 - Through a Dog's or Cat's Ear
 - Cat specific music – Music for Cats on YouTube
<https://www.youtube.com/watch?v=vGyElqvALbY&list=PLnlk-ZUVC7isG-Rau2XviwPdzm3u-fbMw&index=4>



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Environmental modification in the Vet Clinic



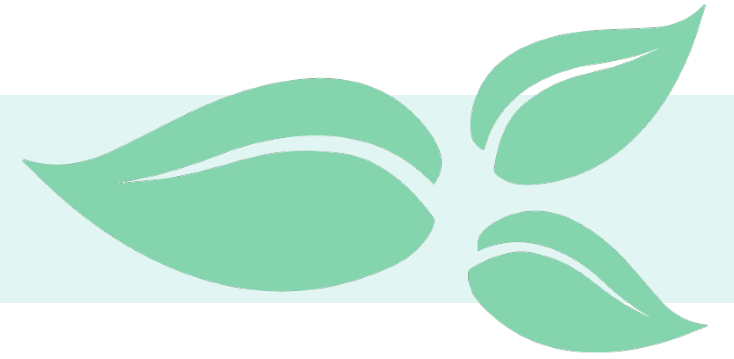
- Calming music is playing
- Selection of high value treats and toys
- Pheromone has been sprayed on the towel
- Promote puppy and kitten kindergarten classes
- Use visual barriers to limit view of other people/pets
- Provide adequate traction on examination tables and floors
- From the lobby directly into a Quiet Room that has been aired out



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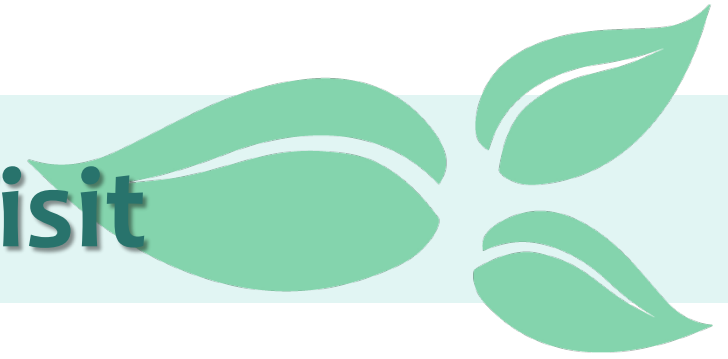


Considerate Approach



- Avoid direct eye contact
- Speak in soft, calm voices
- Approach slowly from the side
- Avoid having too many hands involved
- Avoid reaching directly over the pet's head

Treats During the Veterinary Visit



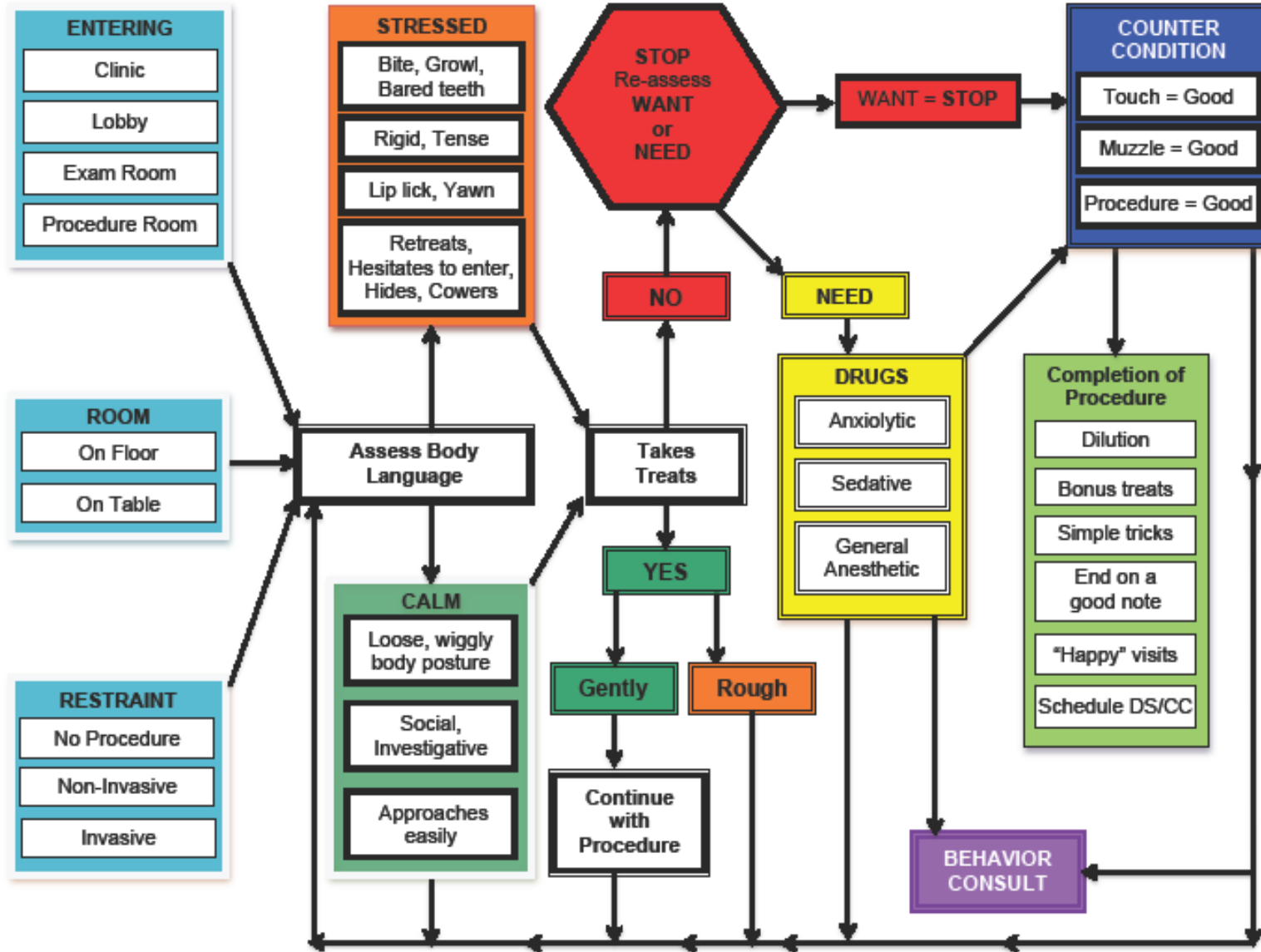
- Food is used for counter-conditioning – changing emotional response
- Have a large variety
 - Jerky treats
 - Stinky treats
 - Canned food
 - Baby food
 - Cheese
 - Yogurt
 - Frozen chicken broth



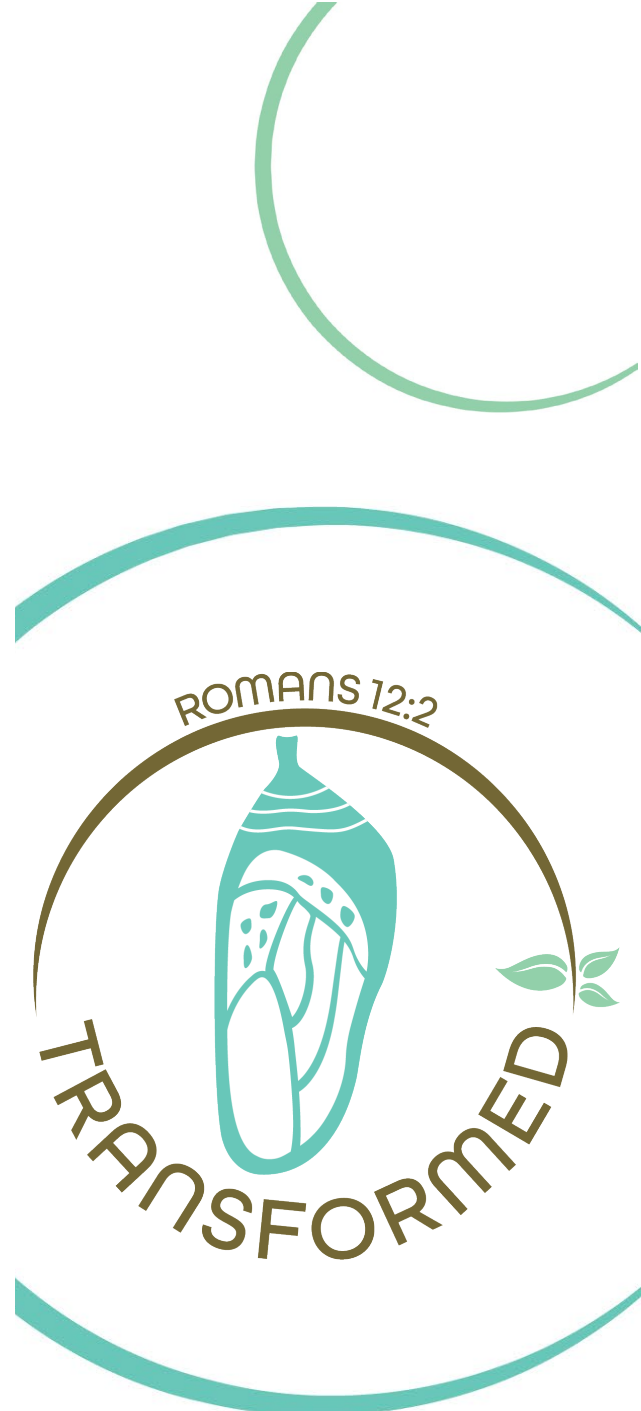
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Algorithm For Handling Patients



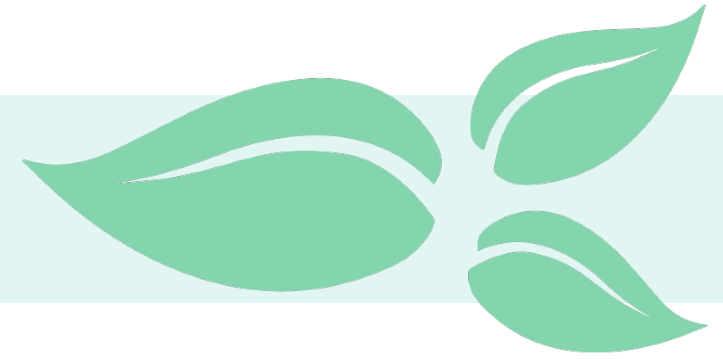
Colleen S. Koch, DVM, DACVB





The Use of Natural Supplements and Psychoactive Medication

Gut-Brain-Axis



There is a correlation with anxiety and intestinal health

- Gut microflora can influence the stress circuitry in the brain.
- Use a Probiotic to improve mental and gastrointestinal health.
 - Live concentration of bacteria
 - Multiple beneficial strains

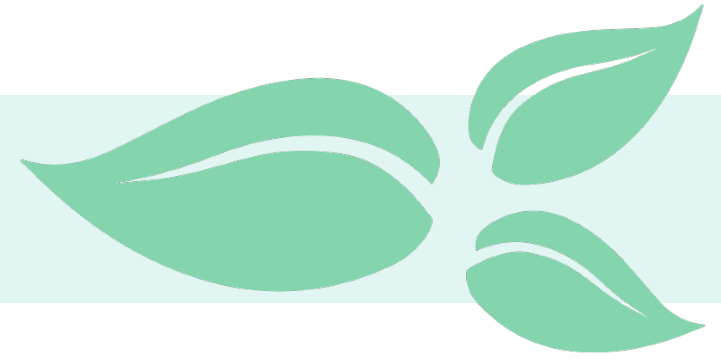
Zheng et al, 2016, *Molecular Psychiatry*



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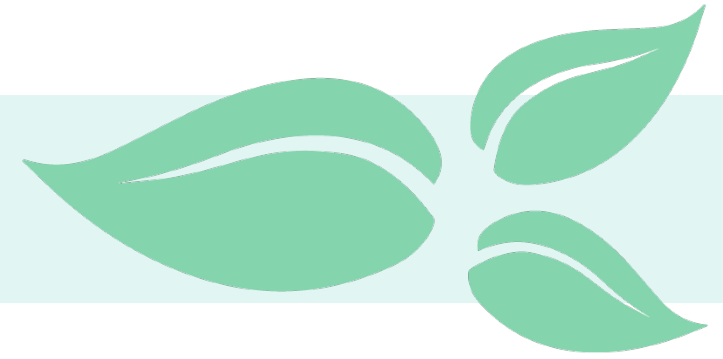
Dermatological Treatment



Support skin health

- Welactin[®] Omega-3 Supplement
 - a source of long-chain omega-3's from wild-caught, cold-water fish
- Dermaquin[®] helps support a healthy response to allergens.
 - Fortifies and support the skin's natural barrier

Urinary Health



- Behavior management
 - Take out multiple times throughout the day
 - Limit exposure to stressors
- Medical management
 - Place on prescription diets
 - Use of Cranadin in dogs susceptible to UTIs caused by E. Coli

Behavior - Natural Supplements

Canine/Feline

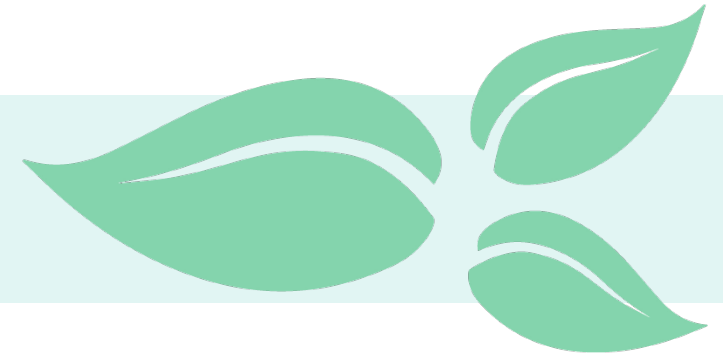
- Dog appeasing pheromone/Feline pheromones
- Alpha casozepine
- L-theanine
- L-tryptophan
- Probiotics



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Solliquin



1) L-theanine (green tea extract)

Promotes calm brain waves (alpha waves)
Increase GABA, dopamine and serotonin

2) Alpha lactalbumin (L-tryptophan)

- Amino acid precursor that provides the brain with more materials to make more serotonin
- Improves cognitive performance in stressed patients

3) Phellodendron amurense

- Extracts contain berberine which has anxiolytic effects similar to diazepam and buspirone

4) Magnolia officianalis

- Binds to GABA receptors



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Short-Acting Medications



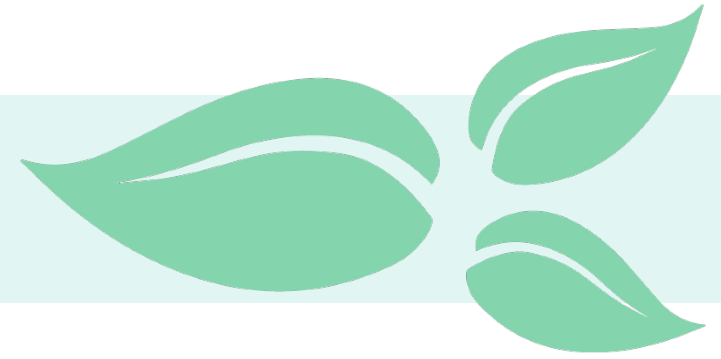
- **Trazodone** - Serotonin 2A antagonist, serotonin reuptake inhibition
 - Canine Dose: 2-7 mg/kg BID(-TID); do not exceed 15mg/kg daily dose
 - Feline Dose: 50-100 mg per cat
- **Gabapentin** - Anticonvulsant/Neuropathic Pain Analgesic
 - Canine Dose: 10-30 mg/kg BID-TID
 - Feline Dose: 50 – 100 mg per cat
- **Clonidine** - Alpha 2 agonist
 - Dose: 0.01-0.05 mg/kg BID-TID



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Maintenance Medication



SSRIs

- Blocks serotonin re-uptake at the presynaptic neurons
- May increase post-synaptic receptor sensitivity
- Some inhibition of hepatic enzymes and can elevate the blood levels of other drugs when used concurrently

TCA's

- Affect 5-HT, NE, ACh and histamine
- Most potent inhibitors of 5-HT uptake
- Metabolites are more potent inhibitors of NE uptake
- No antidote for toxicity



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Maintenance Medication



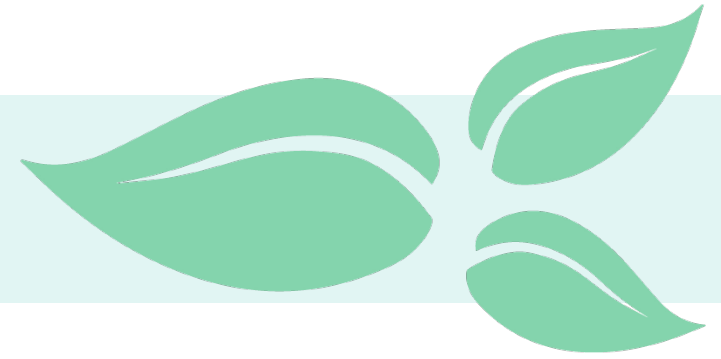
- Fluoxetine (Prozac)
 - Dog: 1-2 mg/kg PO QD
 - Cat: 0.5-1.5 mg/kg PO QD
- Paroxetine (Paxil)
 - Dog: 1-1.5 mg/kg PO QD
 - Cat: 0.5-1.5 mg/kg PO QD
- Sertraline (Zoloft)
 - Dog: 0.5-4 mg/kg PO QD
 - Cat: 0.5-1.5 mg/kg PO QD
- Clomipramine (Anafranil; Clomicalm)
 - Dog: 1-3mg/kg PO BID
 - Cat: 0.25-1.3 mg/kg PO SID
- Amitriptyline (Elavil)
 - Dog: 1-6 mg/kg PO BID
 - Cat: 0.5-2 mg/kg PO BID-SID



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Side Effects



SSRIs

Side effects:

- Initial Sedation and lethargy
- Loss of appetite
- Nausea, diarrhea
- May lower seizure threshold
- May alter blood glucose levels
- Use with caution in patients with hepatic disease

TCAs

Side effects:

- Initial marked sedation and lethargy
- Anticholinergic effects (dry eyes and mouth, constipation, urine retention, mydriasis)
- GI upset
- Decreased seizure threshold
- Decreased cardiac conduction (tachycardia, arrhythmias)
- Testicular hypoplasia
- Changes in blood glucose levels



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Serotonin Syndrome



- Vomiting
- Seizures
- Disorientation
- Hyperesthesia
- Depression
- Mydriasis
- Vocalizations
- Blindness
- Hypersalivation
- Hyperthermia
- Diarrhea
- Coma

DEATH



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Plan of Action: Mild Fears and Anxiety



Situational and short term

- Trazodone +/- NS
- Clonidine +/- NS
- Gabapentin +/- NS

Maintenance – prolonged occurrence

- Natural supplement
 - Solliquin
- Medication
 - SSRI
 - TCA

Plan of Action: Moderate cases



- 1) Maintenance Medication (SSRI, TCA)
- 2) Adjunctive:
 - Trazodone
 - Clonidine
 - Gabapentin
 - Natural Supplement (Solliquin, l-theanine, pheromones)



wsung@sfspca.org

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