

# The Post-Traumatic Stress Disorder (PTSD) Related to War Events in Companion Animals

Veterinary guidelines for the prevention and care of companion animals' PTSD during the Ukrainian conflict



## *PTSD definition in humans.*

Post-traumatic stress disorder (PTSD) is a mental health condition that is triggered by a terrifying event — either experiencing it or witnessing it. Symptoms may include flashbacks, nightmares and severe anxiety, as well as uncontrollable thoughts about the event.

Most people who go through traumatic events may have temporary difficulty adjusting and coping, but with time and good self-care, they usually get better. We speak about pathology; about PTSD if the symptoms do get worse, last for months or even years, and interfere with day-to-day functioning. Post-traumatic stress disorder symptoms may start within one month of a traumatic event, but sometimes symptoms may not appear until years after the event. These symptoms cause significant problems in social or work situations and in relationships.

## *PTSD and noise fears in pets.*

PTSD during war events is essentially related to, especially, the exposure to loud noises coming from bomb attacks, gunshots, but also noise from distressed people near the animal. Fear of loud noises is an innate and adaptive behavior of self-protection. There are different behavior manifestations: some individuals try to hide, others try to run away from the source of fear, some may even feign death. Despite being rare when exposed to fearful noises, there are some animals that try to defend themselves using certain type of aggressive manifestations. But, being rare, the other mentioned reactions are those frequently seen when an animal is exposed to a loud noise.

Fear is an emotion that is triggered by a stressor, that pushes the individual out of its homeostatic (i.e. equilibrium) state to a so-called allostatic charge. From the allostatic charge the animal can cope and return to its previous homeostatic state or, may not be able to do so and may fall into a pathological state. The evolution will depend on the severity and frequency of the exposure, the context and the individual vulnerabilities.

If the cat or the dog cannot cope with the stressor, a behavioral disorder may develop with different symptoms and reactions, but all due to a high sensitization to the stimuli itself or other present in the moment that the stressor started.

Furthermore, if the animal experiences exaggerated fear several times, by sensitization, anticipation and generalization, it can become anxious (i.e. fear despite no noise exposure characterized by hypervigilance or apprehension for the possibility of noises arising). Eventually, an immersion to loud noises on an individual with genetic vulnerabilities and/or impossibility to cope may lead to a “learned helplessness”(a particular depressive state).

The PTSD regroups all the conditions and behavioral manifestations coming from the emotional state that appear immediately or a few days after experiencing a trauma.

### *PTSD etiology in a war context*

The sources of noise more often reported as causes of fear reactions in dogs and cats are alarms, sirens, thunder, shots, and fireworks. Thus, the exposure to the alarm and explosion noises is certainly the main etiological factor of PTSD for animals during war events. Dogs and cats have a wider auditory range than human hearing and they can hear a much broader range of frequencies than humans.

The humans’ behavior during a war events (specially their guardians with whom they have strong bonds), the brutal changes in the environment and the loss of an expected routine are also important elements that participate to the PTSD in companion animals during a war.

Dogs and cats, as in people, due to their individual sensitivity, may take several weeks, or even months, to recover from a stressful event, especially without medical help. In worst cases, pets are not able to recover at all from PTSD.

### *Clinical signs and diagnosis of PTSD*

Cats and dogs presented for PTSD present a myriad of active and passive behavioral signs of distress. They can show acute expression of fear such as hiding, trembling, pacing, panting and hypersalivating. In case of anxiety, they can show restlessness, with sudden fear attacks despite no objective fearful stimulus exposure, a high tendency to seek the owner’s proximity and distress when they are separated from them. Some animals may develop compulsive behaviors like self-licking or wool sucking particularly in cats. Finally, some clinical signs like sleep and appetite disorder, isolation and lack of motivation may appear and evoke a chronic depression.

A companion animal that expresses one or more of the symptoms described above after the exposure of war events is suspected to suffer from PTSD.

### Medical treatment.

As far as PTSD is a behavioral pathology that impact severely the animal's welfare, psychotropic medication is useful and can be mandatory in some cases.

Following is a table with the main advised medications and their posology

Medication	Posology (per os)	Indications	Remarks
Alprazolam	Dogs: 0.04 to 0.08 mg/kg every 6 to 8 hours as needed Cats: 0.125 – 0.25 mg/cat (NOT mg/kg) PO every 8 to 24 hours	Phobia and anxiety	Useful immediately after to prevent traumatic memories. Liver function has to be monitored in case of prolonged usage
Gabapentin	Dogs and Cats: 15 to 30 mg/kg every 6 to 8 hours as needed. In dogs single dose to 50 mg/kg may be used.	Phobia	Useful alone or associated to other medications. If used before an expected event give at least 90 minutes before exposure
Dexmedetomidine	Dogs: 125mcg/m <sup>2</sup> every 6 to 8 hours as needed Cats: no reference	Phobia	Use preferably before the expected event.
Clonidine	Dogs: 2-3mg/kg BID or 1h before a possible stressful situation gives good results.  Cats: no reference	Phobia, anxiety	May be useful to prevent acute expression of fears with adrenergic signs (tachycardia, tachypnea, shaking). Useful alone or associated with other medications.
Trazodone	Dogs and Cats: 5 to 10 mg/kg every 8 hours as needed or BID.	Phobia, anxiety	Useful alone or associated to other medications. If used before an expected event give at least 90 minutes before exposure
Fluoxetine	Dogs: 1 to 2 mg/kg SID (Cats: 0.5 to 1 mg/kg SID)	Phobia, Anxiety, Depression	Loss of appetite and tiredness are expected and normal adverse effects during the 3 first weeks. Association with alprazolam, gabapentin, or trazodone is advised during the onset of the treatment (3 weeks)
Clomipramine	Dogs: 0.5 to 2 mg/kg BID Cats: 0.25 to 1 mg/kg SID	Phobia, anxiety, Depression	Association with alprazolam, gabapentin or trazodone is advised during the onset of the treatment (3 weeks)

### *What to do to prevent PTSD during all these events?*

There is no real prevention of PTSD. It depends on the level and the frequency of the exposure, the genetic vulnerabilities, and the history of the animal. The characteristics and the quality of the daily routines, in term of environmental stimulation are crucial. The best way to prevent PTSD is to prevent a strong emotional memory to take place. It requires the use of an adapted cognitive-behavioral therapy, potentially some preventive medications if the animal already showed in the past vulnerabilities to loud noises (benzodiazepines/  $\alpha$ -2 adrenergic receptor agonists or similar anxiolytics drugs that will help the pet to cope with the event/situation). The owners' behavior plays a large part in the PTSD especially in dogs who are sensitive to human emotions. Eventually, PTSD can be a condition shared by both the owners and their companion animal which illustrate, in a dramatic situation, the strong bond that unify the two species.

During the traumatic war event, if possible, the owners and their companion animal should find a shelter. It can be a secured room, and underground space or even a stairway. The animal should be put and closed in a safe place to avoid any flight attempt and to prevent any injuries in case of a fight reaction. The dog must be leashed. If he or she is used to stay in a cage the dog can be put in it. Some cats feel better inside their cat carrier, one in each carrier. The bench or the carrier should be covered with blankets to reduce the noise. Once in the shelter or the most secure place that can be found in time, if the animal shows signs of distress a slow and calm interaction may help. Slow petting, calm word, calm voices can help.

Once the animal is sensitized to war events like alarm or explosion his phobia or anxiety may generalize to other situations like thunderstorm, ambulance alarms or fireworks. In case of expected and predicable events a noise proof place can be provided like a cage warped up with noise proof material or if it exists the access to a secured room. Special ear protection against noise like Mutt-Muffs™ can be found in the market and will help by lowering all noises intensity.

All these animals will need an individual behavioral modification therapy, apart from the supportive medication mentioned, to improve their condition and recover a balanced emotional state.

### *Prognosis of PTSD*

The prognosis is variable because even if the medication and the behavioral therapy help, a new traumatic exposure event to a noise, not even related to war events, can worsen or reactivate the condition. However, using both medication and behavioral modification, most cases improve or recover, but relapses are frequent and in worse cases, PTSD may be a chronic life-long condition which needs a prolonged treatment.

For further reading, please see also

1. Denenberg S. Small animal veterinary psychiatry. CABI, editor. CABI. 2021.
2. Landsberg GM, Hunthausen WL, Ackerman LJ, Previous edition : Landsberg GM. Behavior problems of the dog and cat. Saunders Ltd., editor. 2012.
3. Crowell-Davis SL, Medicine B, Murray TF, Mattos L, Dantas S. Veterinary Psychopharmacology Second Edition. 2019.