

The Role of Service Dog Training in the Treatment of Combat-Related PTSD

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In response to the critical need for adjunctive treatments for soldiers with refractory forms of mental injury — primarily posttraumatic stress disorder (PTSD) — the US military is developing complementary and alternative medicine (CAM) techniques, including animal-assisted intervention (AAI).^{1,2}

CAM modalities include therapies such as yoga, meditation, and creative art therapies, shown to have an effect on the mind's capacity to regulate the brain and body's response to social and environmental challenges by reducing stress and enhancing the immune function through the release of the neuropeptide oxytocin by the brain.

Olf et al³ suggest PTSD symptom treatment would be improved by increasing endogenous levels of oxytocin through optimizing of social support. Studies show

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Valerie, a golden retriever, demonstrates her ability to connect with a Marine at the National Intrepid Center of Excellence.

that dogs can provide such an optimization of social support and that positive interactions with dogs may offer a safe, effective, and relatively inexpensive way to increase endogenous levels of oxytocin and other important anti-stress agents in humans.

ROLE OF OXYTOCIN

Oxytocin is a well-established modulator of a pro-social, anti-stress brain network with the potential to modulate symptoms of PTSD such as: anxiety, including fear response and hyperarousal; interpersonal difficulties/social isolation; physical pain; and sleep disturbances. Human oxytocin research has shown that oxytocin can increase our sense of trust, empathy, and optimism and even increase our response to hypnosis. In rodents, central administration of oxytocin enhanced acupuncture's analgesic effects. Studies also suggest that oxytocin is a central mediator of the placebo effect.⁴⁻⁷

Several studies show that friendly, social interaction with dogs increases blood and urine levels of oxytocin in humans.⁸⁻¹² These human-dog, contact-induced effects gain particular significance in light of a recent brain imaging study which showed that peripheral increases in oxytocin correspond with concurrent activation of the oxytocin brain centers that control the human stress response.¹³

Oxytocin neurons originate in the hypothalamus and connect to the major brain centers that control behavior and emotion. Oxytocin modulates the hypothalamic-pituitary-adrenal axis (HPA axis), the locus coeruleus, the central amygdala (CeA) and other arousal centers of the central nervous system to attenuate stress-induced neuroendocrine activity. Oxytocin receptor-expressing neural circuits in the CeA connect to the medial prefrontal cortex to suppress neurons that produce the freez-

ing reaction to fear, while promoting risk assessment and exploratory response to frightening stimulus.

Oxytocin has also been shown to modulate the serotonin system and reduce levels of cytokines, adrenocorticotropic hormone, and cortisol. All of these brain systems and neurochemical responses have shown to be functionally important in PTSD.¹⁴⁻²¹

With respect to pain and sleep disturbances, oxytocin has been shown to modulate pain in humans and has been shown to impact sleep patterns in animal studies.²²⁻²⁴ Oxytocin has also been shown to be a powerful antioxidant that can bolster the immune system and protect against sepsis.^{25,26}

One dose of oxytocin given to war veterans with PTSD demonstrated decreased physiologic responding to provoked combat memories.²⁷ Oxytocin in humans, has been shown to enhance the processing of positive social information compared to negative information, increase a sense of trust in others, reverse the effect of aversive conditioning of social stimuli, enhance the buffering effect of social support on stress responsiveness, and reduce the stress response in people with a history of early trauma.²⁸

This same pro-social/anti-stress response has also been observed in service members with PTSD who train service dogs. As we will demonstrate, shaping the behaviors of service dogs requires the focused nurturing social attention towards dogs that has been shown to naturally increase oxytocin blood levels in humans.

There are many potential uses of animals in support for service members and veterans. The remainder of this article shows one program which has great promise. Others are covered in more detail in *Canine-Assisted Therapy in Military Medicine*.¹

WARRIOR CANINE CONNECTION

The Warrior Canine Connection (WCC) is a nonprofit organization, based in Brookeville, MD, that enlists “wounded warriors” with PTSD and traumatic brain injury (TBI) in the training of service dogs for fellow veterans as a therapeutic interven-

tion. WCC currently has dogs in training at several military treatment facilities (Walter Reed National Military Medical Center, Fort Belvoir, and National Intrepid Center of Excellence) and the Palo Alto Veterans Administration (VA) Healthcare System.

Occupational therapists utilize some of these programs as therapeutic “work therapy” internships with the goal to facilitate a purposeful and meaningful occupational intervention that builds skill sets for functional independence. The program engages service members in a healing mission, instructing soldiers with PTSD and TBI on how to train service dogs for fellow veterans with physical and psychological injuries.

WCC’s training philosophy is based on positive methods of shaping behaviors and the premise that mastering the skills and patience required to train a service dog helps the WCC trainers regain control of their own emotions, focus their attention, and improve their social competence and overall sense of well-being.

Since beginning this therapeutic intervention model, very promising responses to this program from both active-duty service members involved in the current conflicts, as well as veterans have been observed by clinical staff (see Sidebar).

The WCC training was developed by a social worker and service dog trainer, Rick Yount, MS, LSW, to address all three symptom clusters associated with PTSD: re-experiencing, avoidance/numbing, and increased arousal. The interventions in the program are targeted to remediate each category of these symptoms as follows.

Re-experiencing

Procedures used in training service dogs require the trainer to focus on the dog’s point of view of the present, in order to recognize the “teachable moments” when instruction will be most effectively processed and retained. The presence of the dog during a stressful situation or encounter changes the context of the arousal event and anchors the trainer in the present, reminding the service member or veteran that they are no longer in dangerous circumstances. If the patient/trainee does ex-

SIDEBAR.

Anecdotal Reports of Improvement in PTSD by WCC Participants

- Increased patience, impulse control, emotional regulation.
- Improved ability to display affect, decrease in emotional numbness.
- Improved sleep.
- Decreased depression, increase in positive sense of purpose.
- Decrease in startle responses.
- Decrease in pain medications.
- Increased sense of belongingness/acceptance.
- Increase in assertiveness skills.
- Improved parenting skills and family dynamics.
- Less war stories and more in the moment thinking.
- Lowered stress levels, increased sense of calm.

WCC = Warrior Canine Connection.

perience a trigger for symptoms, the presence of the dog can lower anxiety levels.

Avoidance and Numbing

Service dog training requires that the dog is exposed to a wide range of experiences in the community. This also creates opportunities for the soldier-trainer to reintegrate into civilian life. As part of the training, the service members are responsible for teaching the dogs that the world is a safe place. Through that process, the PTSD-affected soldiers must convince themselves of the same.

For example, the soldier-trainers are taught to praise and treat the dogs when they hear a car backfire or other startling events. Rather than turning inward to ruminate on their past trauma, they must get outside of their own heads to focus on the dogs and their mission to help another veteran.

Additionally, the dogs can help offer veterans who often isolate themselves from society, opportunities to experience positive interactions with members of the community. The training program requires soldiers who have likely “numbed” their feelings to instead demonstrate positive emotion, such

as praising the dogs to successfully teach them. Many program participants have reported that this use of positive emotion has significantly improved their family dynamics as their children respond to this positive “parenting” strategy.

In order to shape the behavior of a service dog, trainers with PTSD must also overcome their emotional and affective numbness in order to heighten their tone of voice, bodily movements, and capacity for patience so that they can deliver their commands with positive, assertive clarity of intention and confidence. In doing this, trainers soon discover they can earn their dog’s attention and best guide them to the correct response.

The dog’s success must then be rewarded with emotionally-based praise. The WCC training technique allows the trainers to experience rewarding positive emotional stimulation and social feedback. The basic daily needs of a service dog involve structured activities that also bring the trainer and dog into the kind of close nurturing contact that further creates a behavioral and psychological antidote to social avoidance.

Hyperarousal

WCC service dogs are bred to be responsive to human emotions and needs. Their sensitivity to and reflection of their trainer’s emotional state provides immediate and accurate measures of the trainer’s projected emotion. This also challenges the trainer to overcome his or her tendency for startle reactions so that he or she can relay a sense of leadership and positive feedback when their young dogs are faced with environmental challenges such as cars backfiring or being approached by strangers.

WCC service dogs are also bred to be affectionate and have a low-arousal temperament that puts their trainers “at ease.” With these dogs at their sides, trainers perceive greater relaxation and social competence and are able to shift out of their hyper-vigilant, defensive mode into a relaxed state that makes them ready and able to connect with others.



Ron, a 9-month-old Labrador retriever, is trained by a Marine Sergeant to open doors at the National Intrepid Center of Excellence.

Image courtesy of Rick Youint, MS, LSW.

REPRESENTATIVE CASES IN ANIMAL-ASSISTED THERAPY

Case 1

A Marine injured by 13 separate improvised explosive device (IED) detonations during his multiple tours in Operation Iraqi Freedom and Operation Enduring Freedom had been in a PTSD treatment program for several weeks but was not responding despite a myriad of behavioral and pharmacological interventions.

He sat in the corner with his sunglasses on, occasionally twitching his head from side to side in a tic-like manner. His peers were hesitant to interact with him due to his body language and lack of response to their attempts to connect with him.

An 8-month-old golden retriever repeatedly nudged his arm, intent on making a new friend. Although the Marine rejected the dog’s first several attempts, the pup’s persistence paid off and soon was able to elicit a smile from the Marine. Noticing the emerging connection, the treatment staff asked the Marine if he would consider helping to train the dog to help a fellow veteran. His commitment to helping other warriors along with his interest in the dogs prompted him to participate in the service dog training program.

Within 2 days of working in the program, he began to smile and bond with the dog. His involvement led to his first positive interactions with staff and fellow veterans. Instead of leaving the PTSD pro-

gram without successfully completing it, he was able to finish the entire program and process his trauma through the support of his dog, peers, and treatment team. Through training the service dog, the Marine learned to teach the dog to associate loud noises with praise and treats. To do this, he had to challenge his automatic thoughts about his own triggers in order to convince the dog that the world around him was a safe place.

Case 2

A young Marine Sergeant was referred to the WCC program as part of his treatment for PTSD and TBI. He endorsed difficulty sleeping, isolating, regulating his emotions, and parenting his 4-year-old daughter. The Marine reported a love for dogs and jumped at the chance to participate in WCC. He specifically focused on using his “praise voice” when marking and reinforcing desired behaviors, and while regulating his emotions when correcting unwelcome behaviors.

The Marine was offered an opportunity to keep the dog overnight after he developed a bond and sufficient skills to handle the dog. The next day, he reported a significant improvement in his quality of sleep. The dynamics between him and his daughter also showed improvement following the dog’s overnight stay.

The Marine was encouraged to use the same positive techniques of using praise

and patience with his daughter. He reported that learning to train the service dog had a profound impact on his parenting style. Rather than focusing on his daughter's mistakes, he began to look for opportunities to praise her and set her up for success. He now has his own service dog and is working with his local VA to develop a service dog program in his local area.

CONCLUSION

These cases demonstrate the effects service dog training as a purpose-driven intervention have on the symptoms of PTSD and mild TBI and how such a program can facilitate psychological and social improvement, and functional independence. They also indicate that the focus, intention, and nurturing social contact involved in shaping the behavior of young service dogs may be acting as a potent agonist of neurophysiological systems known to be dysregulated in PTSD.

A number of studies now show that human-dog interactions, such as those used to train service dogs, naturally increase circulating oxytocin levels in people. Further research is required to establish the psychological and behavioral effectiveness of the service dog training model and to investigate the underlying physiological mechanisms that support the observed reductions of PTSD symptoms.

Identifying a potent, safe, natural method of stimulating the anti-stress/pro-social oxytocin brain network is very important since there is no US Food and Drug Administration-approved oxytocin drug available at this time. A stronger scientific understanding of cause and effects of therapy dog training will provide scientific, objective guidelines for the appropriate training for therapy animals and policies that regulate how and when therapy animals may be used to help service members and veterans.

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