



**Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury  
Webinar Series**

**“Animal-assisted Therapy: An Alternative Treatment to Traumatic Brain Injury  
Rehabilitation”**

---

August 11, 2016 1-2:30 p.m. (ET)

**Operator:** Welcome and thank you for standing by. All participants are in a listen-only mode throughout the duration of today's conference. If you should need any assistance from a coordinator, please press \*0 and one will answer your signal.

Today's conference is being recorded. If you have any objection, you may disconnect at this time. Now I'll turn the call over to your host, Dr. Brooke Heintz. Thank you doctor, you may begin.

**Dr. Heintz :** Thank you so much. Hi everybody. Thanks so much for joining us today for Defense Center of Excellence for Psychological Health and Traumatic Brain Injury August webinar. [inaudible 00:00:34] Animal-assisted Therapy and Alternative Treatments for Traumatic Brain Injury Rehabilitation. My name is Brooke Heintz. I am a clinical social worker currently working with [inaudible 00:00:45] clinical practice, clinical recommendations team, and I am really excited to be your moderator today.

Before we begin, let's review a few business items. If you experience any technical difficulties, please visit [dcoe.mil/webinar](http://dcoe.mil/webinar) to access troubleshooting tips. Please feel free to identify yourself to other attendees via the chat box but please refrain from marketing your organization and/or products. Today's presentation, reference, and resources are located for downloads from the files pod and will be archived in the online education section of the DCOE and DVBIC website.

All who wish to obtain continuing education credit or certificate of attendance and who meet eligibility requirements must complete the online CE evaluation. After the webinar, please visit [dcoe.cz.f.pesgce.com](http://dcoe.cz.f.pesgce.com) to complete the online CE evaluation and download or print your CE certificate or certificate of attendance. Don't worry, we're going to review that web address at the end, that's quite a mouthful there. The evaluation will be open through Thursday, August 25, so you have 2 weeks to complete it.

Throughout the webinar, you are welcome to submit technical or content-related questions via the Q&A pod located on the screen. All questions will be anonymous. Please do not submit technical or content-related questions via the chat box. All right, let's get started with today's main

event, our webinar, animal-assisted therapy and alternative treatments to traumatic brain injury rehabilitation.

Many service members return from combat deployments, they're coping with invisible wounds of war including traumatic brain injury and post-traumatic stress disorder. These wounds often negatively impact quality of life and community reintegration. The Walter Reed National Military Medical Center dog service training program assists patients with TBI, PTSD, and other psychological injuries through the clinically-based goal-oriented complementary treatment intervention of animal-assisted therapy. Today's speaker will address the healing power of the human-animal bond, how patients are taught to train mobility service dogs, how these skills improve TBI and PTSD symptoms, and current research initiative.

At the conclusion of this webinar, participants should be able to identify 3 items. First, describe the purpose and scope of the service-on-training program and animal-assisted therapy intervention, explain the human-animal bond and its therapeutic role in reducing TBI and PTSD symptoms, and lastly articulate the role that active participation and the service dog training program can have as an alternative treatment to traditional rehabilitation approaches for patients with TBI or PTSD.

Ms. Meg Olmert is a senior research advisor for Warrior Canine Connections mission-based trauma recovery program. She is an expert on the neurobiology of human-animal bond and its therapeutic effect. Ms. Olmert also wrote a groundbreaking book *Made For Each Other*, a biology of human-animal bonds in 2009. She is the co-investigator on 2 major Department of Defense-funded research studies on the efficacy and biological basis of the Warrior Canine Connection service dog training program for the reduction of symptoms of PTSD and TBI. Now unfortunately, due to unfortunate circumstances, our scheduled second presenter, Mr. Rick Yount is unavailable to present today. While Ms. Olmert is the primary presenter for today's session, we still want to thank Rick for his large contribution to today's webinar.

All right, now let me pass off the show to Ms. Meg Olmert. Meg, the floor is all yours.

Ms. Olmert:

Thank you very much, Brooke. Hello, everyone. I'm watching the chat come in and I see that you're all over the country. It's really exciting to be able to share the Warrior Canine Connection program with you and talk about how it works and why it works. Hi, John Moon.

I'm going to be advancing my own slides here and I'm not Rick Yount so I'm just going to move ahead. I was [inaudible 00:05:29] so that's our secret weapon right there. That's the invasion of the heart snatchers, and that's what we're going to be talking about today is why training those little dogs to be service dogs for another veteran may provide some of the most powerful release of the symptoms of traumatic brain injury and post-

traumatic stress disorder. Rick has no financial relationship to disclose, nor do I by the way.

What is Warrior Canine Connection service dog training program? It's many things. These are the top 3: it's an animal-assisted therapy obviously, it's clinically designed to improve emotional/behavioral outcomes not just for the patient but for the family of service members and veterans. We think that's very important to right upfront talk about that because that's your secondary passing on of post-traumatic stress disorder, and that's something we cannot afford in any way and TBI as well. It's a mission and that's extremely important. It allows service members to become not just caretakers, receivers but caregivers. We have a unique population of patients who are service members or war service members and just think of that name, service, that's what they want to do. They don't want to receive, they want to give, so this allows people to shift while they're in treatment from being somebody who they might feel is a detriment to back into an active duty role of helping a fellow veteran by training a service dog for them.

Then again, it's a voluntary complementary intervention and it provides as we say here meaningful experiential learning opportunities that enhance an incredible range of interventions that are treatment as usual, standard gold care treatment for TBI and PTSD. It's a lot of things and it's kind of a mouthful and it makes it hard to put it on a bumper sticker, but considering how complex a TBI injury is or post-traumatic stress is, you can't have a simple answer. If you're not hitting all these notes, you're missing some and that's not unacceptable.

Warrior Canine Connection was a model that was first introduced at Walter Reed in 2009 when it was still over at the Army Medical Center. Moved over to the Walter Reed National Military Center and we now are at [inaudible] and the Palo Alto VA and we're actually above that 4300 number of patients that have come through the program and benefited from it, so we're very happy about that. The clinicians and the patients, it is their support that has encouraged the VA and the DoD leadership to bring the program on in new locations.

Who are these dogs? As I said these are our secret weapon. We breed them. These are specially-bred golden retrievers and labradors. We look at their genetic line. We want dogs that we know come from stock that have proven to be socially responsive, calm, sound in health. You want these dogs to be ... you don't want to see tantrums, you don't want to see heart problems, you don't want to see eye problems or hip problems. These are going to be trained to be mobility service dogs. That's the highest level of training a dog can go through. Not all might make it, but they're going to be trained to that level and you have to have a dog that is sound in heart, body, and mind.

Trainable, very important. There is hard science that shows that certain breeds are more trainable. They're more attached to humans. They want

to please more. That's so important for our service members who are using the training of the dogs as a therapy because we want to set them up for success so we want the training as a therapy to be successful. Of course when we place and partner a dog with a service member in need, we want that dog to be the best dog it can be, a gold standard dog because that's what our military and veterans deserve.

That was the nature I talked about before, the genetics of what we do. We trace these lines. They're here to nurture. Many of you will already know the term epigenetic. Epigenetic factor affects the part of the genome that is not the gene specifically but control the activities of the genes, and that is the part of the genome that is highly susceptible to the environment especially to the social environment for this particular kind of work that we're doing. We make sure that our puppies are born with the best genes and then we nurture those genes. We pet them and we stroke them from Day 1 and we turn ... which actually allows genes to turn on. You might have genes but unless they're epigenetically activated, they might not turn on so we want the best genetic basis for our dogs so that they can provide the kind of social and emotional support that they're going to need to be able to provide so that also they're happiest in the work.

It's very important that a service dog love its work. This is not done by coercion. That's not the partner you want. You want a dog who has it in their heart to do this work and this is how we're shaping their hearts. They steal ours and we do our best to steal theirs too and [inaudible] so the service members come out with their families and they do that hard work of puppy petting. We do take volunteers because it takes a village to do this, so if any of you are in the area of Montgomery County in Maryland and people have come by the way from all over the world to pet our puppies so it's not an excuse if you're not in the area. If you want to come, we will have litters and watch our website and you can come and pet them and help us make these dogs into world class service dogs from Day 1.

Okay, who are the service humans? It probably won't come as a surprise to you but they're the hardest ones to catch. We can't breed them, but they are service dog instructors. Puppy parents. It's amazing, the people who will sign up and take a dog into their lives for a year or 2 years and make sure that they come to the classes and they keep up the training standards and provide the dogs with support. We're very lucky because a lot of our clinicians are foster parents. Many of them bring the dogs to work with them at Walter Reed and drop them off in our office where then they are trained everyday by the patients who come in and they then go home with their puppy parents at 4 o'clock. That's great when that works out but we couldn't do what we do without incredible support from the civilian and military community and clinician community.

The Warrior trainers, they're the real deal. There's nobody better committed to training a service dog than a veteran who wants to train it for another veteran so we're very lucky that we have our Warrior trainers.

We get them through these [inaudible] here through the different programs. We're in many programs. We're in polytrauma, we're in in-patient, outpatient mental health. We're in OT, speech therapy, just about any therapy offered at a medical facility for the treatment of TBI or PTSD would benefit from having a dog present, cognitive behavioral therapy, prolonged exposure. You name it, yoga.

All of those clinicians ask for us to be part of their programs and we are very happy to do it so the service members, so we're training the dogs, we'll bring the dogs with them to those programs often and get greater value from them.

Here's the goal because you know everybody's goal oriented and fun, which is really critical. Meaningful experiential learning opportunities, that's a mouthful but man, when you think about it there are very few ways to learn practice and patients. You have to experience these things and this allows you, the training of a dog is not easy [inaudible] puppy. This puts people through their paces of emotional control and attention control and cognitive control. It's absolutely experience-based, which is a lot of fun for the service members. You see what it's designed to improve, purpose cognition, stress reactivity, emotional skills, social competency. It's incredibly wide-ranging and it does work that well.

The need for effective engaging alternative interventions. I'm probably preaching to the choir here. It is really understandable how difficult it is to treat some of the very complex wounds of war that are the basis of traumatic brain injury and post-traumatic stress disorder. The kinds of damage done to the brain by both, concussion or trauma to the brain itself or chronic stress, many of them are unknown and they affect such basic things as motivation and ability to connect. That is automatically going to really undermine treatment programs and the best of intentions.

I thought it was very interesting that Dr. Gary [inaudible], who's a researcher at NICoE ... Walter Reed rather. This is what he came up with. Better matching evidence-based therapy with patient preferences which seems like a no-brainer but disguising the care so that you don't have the stigma. Given that you've got such a ... in a relationship between the functional and emotional aspects of brain injury, you can approach the care from many levels and some might be more advantageous than others if they're not considered mental health care or something that might be more stigmatized. We'll talk about later why there is such an interrelationship, and it's be the brain centers that are affected are interrelated with emotional and functional components of our behavior.

Then there is the therapeutic role of the Warrior ethos. You just can't put a price tag on this one. This is to ask people to do for others, we know that altruistic behavior has its own brain chemistry. Again we'll go through this later but these are the brain chemicals that are deficient or dysregulated by TBI concussion or post-traumatic stress disorder. Asking somebody to help a fellow veteran is the way to get around resistance to

treatment. We have found that very, very effective as a motivator. I would say that something interesting I've seen in the population of our military is that they're dog-like I think. They're loyal, they're a pack, we have very few that would say they don't like dogs. There are people who are allergic to them but don't like them, no.

Most people have a dog at home that they're really [inaudible] missed and so that's a reason to get involved as well. The idea that they're not in active duty and their brothers and sisters in arms are in harm's way makes them feel guilty and awful and not worth of treatment. This is the way to get them back in the game and tell them you are desperately needed by them and you can still provide a powerful mission of support. Motivation, getting people in the door is huge. Then we let the dogs do the rest.

There it is. There's the dog doing the rest. I'm going to go at length into the neurobiology that's passing right there right now in that ... between those 2 brains rubbing up against one another. We're very fortunate in this world to have a best friend in an animal. It is not a euphemism that a dog is a best friend. They're best friends because their social brain is wired the same as ours but maybe a little more generously. This is not just aw, the dog's cute. It's real feel-good science, and I was amazed when Rick created this program and he called me about it and he told me how it worked and I went oh my God, you've hit the nail on the head, this is exactly the kind of thing that will reignite the brain systems that would be damaged by traumatic injury and PTSD.

Okay, here it is. Now you can read the things on the side but let's look at the picture. What you see there is a service member learning to train a dog and that dog and service member are locked in eye contact. Traumatic brain injury, as you know, finding the right words, they can be in the head but getting them out can be difficult, very frustrating. Fortunately our dog training starts, step 1 is make eye contact. It's pretty hard not to make eye contact with these dogs because they are locked on you.

The good news is just making eye contact with a dog already starts the brain chemistry that I'm going to talk about. Starts firing it. The same chemistry that'll bring down cortisol levels, your epinephrine levels, your heart rate. All of those things, all those physiological and neurobiological components that get in the way of finding the word and getting it out of our mouth. We break ... in order to train a young dog, you have to break every command down into its tiny component parts. Now for a lot of people with traumatic brain injury, that's how they need to learn as well. However to ... you don't sound like you're talking down to somebody when you say okay, let's just look at the dog, give the dog a command, a simple command, sit, wait for the dog to do it, now give him a treat and praises. The dog needs it broken down that way. You're not speaking down to somebody. They're not going to hear it that way, like oh my god he's talking to me like I'm a baby when inside my head I'm not.

The frustration is not there. The resentment and anxiety is gone. The dog doesn't care how long it takes you to spit out the word sit. They really don't, as long as you're wearing that treat pack you have their full attention and patience. It's a fantastic thing. Karen Allen showed that talking to humans ... she didn't show this, that's a classic stressor, talking to any human, even your best friend, will raise your heart rate. Talking to a dog lowers it. There is something very special about the social relationship we have with animals. Dogs in particular, because we live with them and have co-evolved with them for so long but animals in general, but our dogs are bred to be the kind of dogs that will most powerfully elicit the brain chemistry that will get the white noise out of your bandwidth and allow you to learn and remember. Every time we break it down, it depends of course on the severity of the injury, but just asking somebody to remember the dog's name the next time and remember the commands and remember you gave that command but you had to give that command with an assertive tone or it doesn't work. Sit works, good dog works, good dog doesn't.

The dog provides that neural-biological feedback that instantly tells you you've got it right, you're superman because when you get it right your dog is wagging its tail and rubbing on you and you [inaudible] isn't doing that for lots of ethical and good reasons. Dogs get to provide such a powerful social component to this.

Again, here it is. Here is that positive emotion. A lot of times we will have patients who just say they can't do it and we say fake it. Fake it till you make it. Just keep trying. Keep trying to say good dog, good dog, especially the big guys they don't like doing that. The great news is that we know that the neurobiological feedback from smiling, what's happening in this picture right here is again releasing the chemistry. Even if you're faking your smile, you're activating the facial muscles that will start and trigger the brain chemistries of moodal elevation and reward. You can enter the system because it's a feedback system. You can enter it many places. A fake smile is the beginning of turning your depression around.

You might start out faking your smile and faking your positive thrills when the dog gets it right, but boy, does that change fast because it reawakens these brain chemistries, these neural connections and the dogs, they elicit it. They elicit it the way children do because the brain chemistry is the same actually with the way you bond with your children.

You can't get around it. If you're going to train a dog effectively, you're going to have to use assertive training and assertive tone of voice when you're telling them a command. You're going to have to find that praise voice and that mother-ese that is used with babies. When it's time to praise them, you're going to have to get the timing and you're going to have to be patient in the meantime. The dogs are worth it. The reward is incredible. It's not easy but it's so rewarding and it's fun and so that's very motivating all the way around. A big part of the job is taking the dogs out

in public. The world has to be a safe place for those dogs. They have to be fearless and confident to go on escalators, in subway trains, to baseball games and malls and restaurants and perfectly socialize so that nobody minds that you have the dog. In fact, everybody wants to pet the dog.

Something different about our program is that our dogs don't wear vest that say please don't pet me, I'm a working dog. A huge part of recovery for TBI and for PTSD is learning how to reengage in society. Get that social brain network back up and robustly working. Our dogs are really cute and they're really friendly looking so they're not offputting. They attract people ... it's hard to get from Point A to Point B in any kind of zippy speed. You have to build in dog time. They invite on these field trips that our Warrior trainers have to take the dogs on. They invite social engagement so strangers will approach and the service members have to be able to say to them, they will pretty much know to ask if they can pet the dog.

Now if you're in the middle of training your dog, you might say I'm sorry, the dog is in training, if you're really trying to concentrate on certain commands that's fine. But for the most part you're going to say yes, and then you'll give the dogs a command to say hello. In the meantime, believe me people are pulling out their phones and showing a picture of their dogs and talking about your dog and how beautiful it is and [inaudible] just like it. These conversations are full of smiles. They're very natural. They're not about thank you for your service. They're not about what did you do in war. They are normal, friendly social engagements.

It's a form of prolonged exposure therapy. We need our service members to have many, many, many very friendly non-threatening social engagements with strangers so that they begin to feel it's okay, I can go to the store without my dog. A very important part of Warrior Canine Connections mission-based from a recovery program is the last word ... I guess the second to the last word there, recovery. Our goal is not to provide every service member with a service dog. Our goal first is recovery and independence, people to feel so well that they don't need anything to be better.

It is very important that they take this leadership role and they are leaders. They show the dog that the world is a safe place. A car backfires, they cannot retreat into automatic thinking that they're under attack. They have to show the dog, they have to suppress that and show the dog oh my god, oh what a noise. Move right along. The more they suppress their automatic thoughts, stranger approaching, stranger danger, no. Stranger smiling. This is not a problem. This is how the dog learn the world is a safe place by the service members, the Warrior trainers exuding the kind of competent leadership. There's your fake it till you make it as well. Again, it works.

Here we are again, pretty much the same thing. You see people, they want to pet the dog, they want to engage and it's just ... it's the way back home for many service members who have felt very disconnected from their community because they have a prosthetic or their speech is not exactly what they wanted to be or balance issues. Whatever it is, the dog is a social lubricant, the dog is a social bridge, and it's something that humans cannot always be for another so it's great when we find that we have this incredible resource in our dogs to help us over these very difficult times.

This is a picture I'd like you to look at again closely. This is one of our service members, chief Navy Seal of 21 years who could not speak. He had a traumatic brain injury and severe PTSD. He had led men in battle for 21 years and could not order at McDonald's. He had a degree in accounting. He said he couldn't figure out the tip on the check. When he could speak he spoke very haltingly and slowly and was deeply embarrassed by it. They could not ... he got all sorts of care. He finally ended up at Walter Reed and there really was ... his family was falling apart. His wife was on the verge of divorce. The kids, it was just a classic scenario and he was getting ready to go into a rehab facility, long-term care rehab facility but he was feverishly doing brain training, computer games, anything he can do to avoid that he was doing full time. He was acting like a Navy Seal on his own recovery. It wasn't working.

He was asked if he'd like to work with this dog here, the dog was a little younger, as part of the OT portion of his rehab at Walter Reed and he didn't really want him. I mean he did, he said that he loved dogs. Yeah, he'd pet the dog, he'd do it, but he didn't think it would work. He thought no, that's great but I really need to be doing my brain training, my memory games, my language games. He had his head down in a computer all the time. He felt that time given, the dog is just going to take away from that and he wasn't getting better and he was terrified.

Because he said he had made a commitment to himself, he was going to try anything he could, yes. The first 4 times, he couldn't remember the dog's name, he couldn't remember the commands. It was very frustrating and discouraging for him. His speech was still very labored. On the fifth, I'm not sure [inaudible] on the fifth session he realized oh, I get this, this is a memory game. This is the same thing I'm doing except it's in real time with a real-life creature coming back at me because I've either got it right or I don't. Then he understood. He understood partially because he was getting better. This fellow gets up and gives seminars now on our program and how it brought him back from the brink.

He is one of our amazing stories. There are many like him but this is him in Times Square at night. I would say there's a few things that might trigger arousal in that picture in the most healthy of us, but he's looking at his dog, his dog is looking at him and he is good to go. That's an incredible example of how and why the program works as well as it does. His family by the way is in great shape. That's a very happy story there.

Here I am, and here I am. Okay. Now we're going to get to why it works. TBI and PTSD disrupts neurohormonal brain networks. This is known. Blasts can severely affect the pituitary gland which controls the release of many critical hormones for emotion and behavior and cognition. One of those is oxytocin. By now I should have many people listening who know oxytocin and know what it does. I'm very grateful that that has become a known end phase. Oxytocin is one of the pituitary hormones that is dysregulated in PTSD and TBI. In studies where you increase oxytocin, it can restore prefrontal and neural functions in veterans with combat PTSD and TBI. That's a big deal.

Here's why. For those of you who don't know, look at all the things it does. It suppresses the HPA stress active system. It quiets the amygdala in response to negative stimuli so there's your arousal and fear, modulates sympathetic activation of the heart, more arousal, decreases [inaudible] activity, more arousal, improves [inaudible] and heart rate variability, that's what we were talking about. At NICO we did 2 measures, just clinical measures. We had a service member who had severe heart rate variability problem. If he overexercised, even got up too quickly, he'd pass out. His [inaudible] nerve was not working properly.

This had been since for a year since he had come to NICO, they had not been able to do anything for that particularly. When he was measured with the dog and it was the first time that his heart rate variability came into the green thumb that he had improved heart rate variability with dog. You can't even ... it reduces pain perception, anxiety, depression, [inaudible]. These are much literature that supports this, it promotes sleep. We also did a couple of clinical measures with service members who had severe sleep disorders and found that sleeping with the dog took them from zero to 2 hours a night sleep to 6 hours a night sleep the first night. In fact, the one service member who went on to become a service dog trainer, he was late for meetings because he was always sleeping. That was good. That was a very happy outcome to [inaudible] irritability and no one can learn. Learning and memory retrieval is not hard enough for all of us, you take sleep away and it's miserable.

Sleep is probably the most important component and sleeping with a service dog apparently from these [inaudible] measures shows that it really helps. For service members to have severe sleep disorders, we will train dogs to wake them if they're having violent nightmare. Sometimes even depending on the severity you can train a dog to the [inaudible] service member can have a tie around their wrists that the dog pulls on because sometimes it can be dangerous the way people have out of a nightmare, the kind of nightmares that these people are having. Sleep is so important and again here's the restored neural activity involved in working memory, cognitive control, and empathy. That's through TBI so it's really ... that's one little hormone doing that.

Now the reason for doing it is because it's interacting the dopamine, serotonin [inaudible] systems to produce a state that reward social

behaviors. When you say to the dog yes, good dog, you are triggering your brain reward system and your brain, all of these critical neurobiological players, you're waking them up and they're so important for memory and learning and social skills. The awareness that there's a social grey network that these classic neural transmitters interact with and oxytocins triggers them all and orchestrates them into activity to bring us into a state where we are ready for social behavior.

Just eye contact with the dog has been shown to release oxytocin. Petting the dog releases oxytocin. Walking with the dog releases oxytocin. Talking to a dog releases oxytocin. These are the same things that happen with your children. Babies and dogs, it's why people call their dogs their babies because it is the same brain chemistry forming that kind of social memory, social recognition, and they are. They're the babies we never weaned.

Oxytocin increases trusting and trustworthy behavior, so there's your social approach, and your willingness to approach others facilitates parental bonding and behavior which is so important for keeping families together, we have service members that say I didn't know how to talk to my child. So many families are started when the service member is overseas. They come back, there's not a bond already necessarily established and then there's this injury that prevents normal bonding processes. You have to regroup the social brain network, this neurobiological system that we know is dysregulated. Increase facial retention, eye region, looking into one's another's eyes. Threat will keep you from looking at another person's eyes, but you have to make eye contact. We are social mammals. We're no different than those dogs. We have to make social contact to be in a state of well-being. Everything else is cardiovascular catastrophe or mental health breakdown.

Improves interpretation, nonverbal cues, very helpful in raising babies and training dogs. Oxytocin improves empathy and mind reading, [inaudible] mind. These are both low level and high level cognitive skills that oxytocin tees up and makes more successful. Promoting mate bonding, let's keep the families together. We use the dogs very much in family planning and family therapy.

There it is. Several studies now, I think we're up to 9 that show that when they contact with dogs increases oxytocin in humans. We're not guessing at this anymore, the evidence is in on that. We know what oxytocin does and we know it's released through high-quality social engagement. Training a service dog is high quality social engagement. It's parental behavior, that is what oxytocin evolved to support.

Here's a laundry list of what we have seen the program do. Every single symptom of TBI and PTSD, emotional regulation in patients, family dynamics, parenting skills, sense of purpose, social isolation, there are just so very few other possibilities of things that would even do that. Let me just say the reducing the need for pain medication, as I mentioned

oxytocin works with the opiate system and that is very helpful in the reduction of perception of pain. Just reducing anxiety and depression will take away that background anxiety that can exacerbate pain, so it works on a couple of levels there.

The hypervigilant state, oxytocin working in the [inaudible] and some of the arousal centers of the brain shut them down and quiets the amygdala. It quiets the heart and its reaction so there's a feedback system there that it instills. SSRIs, it is now understood that probably the reason that they have a social and [inaudible] effect is because they trigger the release of oxytocin in the brain.

In the life of one service dog, it takes 2 years to grow and train a service dog we can treat up to 60 patients in the training of a single service dog. That's good math. At the end of that 2-year training period, besides the reduction of symptoms and saved marriages and speech and other amazing significant effects that we see, that dog can be partnered with a service member of veteran who needs that dog seriously for their life quality. The dogs have been estimated costs, you'll hear \$25,000 to \$40,000 and even up from there. We are able to place that dog with a veteran and their family for free because our service members train them.

There are people who might say what happens, don't people get really attached to the dog that they're training and isn't that worst to have to give up a dog when they've lost so much else. It can happen yes, that there can be a profound sense of loss when it's time to pass the leash on to the next trainer or to the service member of veteran who's going to be partnered with the dog, but for the most part, actually for all parts, we've never had it be a negative. Partially it is because this particular group of people knows all about service and sacrifice. They will walk away from their family to do their job not knowing that they're ever coming back.

Also it's not like when you were a kid, or I hope this never happened to you, but the dog isn't going away because he went to the farm. The dog is going on to a fabulous life and the sense of pride and accomplishment that the Warrior trainers have far outweighs any negative sense of loss. In fact on several occasions, service members who have struggled with the feeling of loss, him working with their therapist because that's what we do. We'll say to the case worker they're having some troubles with this. In therapy, what comes out is this isn't a loss that's bothering them. There are other more profound losses that they have not been able to speak about so it has invited the conversations that have been avoided for years perhaps in their treatment and helped them move on from that loss.

We do feel that there is no negative. There is gain through loss in this particular program. Here it is, there's your dog at work. For balance and opening doors and you name it, these dogs are extraordinary. They can get your meds, they can just ... they really are at your side at all times saying what do you need, what do you need, what do you need, I can do

it. Also making you feel comfortable in society if you're walking around with a leg like that and you might have some bad feelings about that.

Now with that dog at your side, because first of all, all anybody sees is the dog. Here's a research initiative. I'm so happy to tell you that we have been able to secure DoD funding to do randomized control trial studies that will take away the last question marks. As I said before, we know the program works. We've seen at clinical observations, we know what oxytocin does. That is documented very powerfully and you'll see it in the citations that I've provided. You can do your own homework on that and see that this is a well-established neurobiological system and we know the dogs release it in humans. The only dot that isn't connected is ... and we know it works on trauma. How exactly does this particular program work for combat, traumatic brain injury, and brain PTSD. It's a tiny dot we're filling in. The randomized control trial right now underway under the principal investigation of Dr. Patricia Doyster at Uniform Services University. She's fantastic and she took this on when very few others were willing to do it. We kept saying we have to study this, we have to study, we have to absolutely put to rest that this is an evidence-based therapeutic intervention.

We started with a pilot study of 40 [inaudible] and it's waitlist controlled. We have 20 outpatient patients from Walter Reed with PTSD diagnosis who are participating in fixed one-hour training sessions with the dogs, pre and post-measures of their psychological anxiety state, physiological response, their heart rate variability, response to exercise stressor which I think is very interesting. Exercise stressor is a perfect correlative to and emotional stressor and there's your mind-body connection. We do heart rate variability pre-imposed stress test, and we draw blood. We're looking at oxytocin, we're looking at vasopressin which is very similar to oxytocin and linked to social behavior but also aggression and anxiety. We're looking at cortisol.

There's a few biomarkers we're looking at. We're looking at genetics. We want to see if we're going to see genetic shifts in that epigenetic region that I was referring to because seeing what we're seeing, we know in rats and in rodent models and even in humans that we can change our epigenetic portion of the gene program in a very short period of time through social behavior. Usually what we're looking at is how chronic stress changes. Let's look at chronic good changing it because it works that way as well. We know that in babies. You have to give them lots of love and attention to get that epigenetic profile working and that's what we need in our patients here as well.

This is a randomized control trial and we're not going forward here. Oh maybe it did go forward. Okay, sorry, it was going forward, my bad. Okay, so here's the second trial. This is the bigger trial that we're going to do that we'll follow on. It's longer. It's 16 one-hour service dog training sessions. It's for we'll measure it at 3 weeks, 3 months, 6 months, and 12 months so we're going to have our pre-imposed measures but it will be

longer term. It's a larger population. We're going do 450. It will also be waitlist control and in this one we're putting a non-interest group in just to rule out that it's ... just to see what happens if people aren't ... or maybe not going to people. That's an important variable in the program.

This one's going to have a special emphasis on social engagement. We'll be doing measurements of with and without dog going out on public outings to look at how social engagement is impacted. Sleep, we're going to pick up our study with sleep and look at [inaudible] see how sleeping with and without the dogs affect sleep behavior. Family dynamics, and I just want to say Rick couldn't be with us today and he was very sorry about that, but Rick is a social worker who came out of 20-some years of social work in the West Virginia Foster Care system. Family dynamics is deeply important to him. He has seen the knock-on effect of bad family dynamics. We know that if a service member loses their family, if there's divorce, if the kids are taken away, these are not going to go well. We have to save the family. We have to save their brain chemistries. Their social brain network is impacted by the PTSD brought home to them. We work extremely hard to ... we're going to measure it. The University of Maryland, they have a family health department and we're going to really take a very close look at how the program affects family dynamics.

There we are. You can see how we're doing all this is just millions of us. Yeah, that's us. We hope that we will end up having on more and more Warrior trainers joining us, that's who we want to have take over this program and bring it into the future so that they can address this. We need to be able to expand and meet the needs of lots more out there, so we're hoping that we will find ... we will be creating breeding the Warrior trainers that will provide the service drug training core that we can unleash on all of you.

There we are. Serving human kind for 30,000 years, that's our motto. Here's some references. I think I will now turn it back to you. I think that's it, isn't it? Those are for you guys to all study. That's your homework. Thanks very much.

Dr. Heintz :

All right, I'm back. Thank you, Ms. Olmert, for your presentation. If you have any questions for our presenter, please submit them now via the Q&A pod located on the screen. This month's product brief is the Defense and Veterans Brain Injury Center A Head For The Future campaign. [inaudible] more than 37,000 service members have been diagnosed with traumatic injury. The vast majority of TBIs are diagnosed in non-deployed settings, from causes such as motor vehicle collisions, fall, training accidents and sports-related injury. A Head For The Future is an initiative to raise awareness of the signs, symptoms, and treatment of TBI diagnosed in non-combat setting. A Head For The Future also educates service member veterans and their families about the importance of preventing brain injuries in the garrison environment.

The military community can access A Head For The Future's Website at [dvbic.dcoe.mil/aheadforthefuture](http://dvbic.dcoe.mil/aheadforthefuture) to get facts about TBI, including what TBI is, prevention tips, where and how to get help for brain injury. The website also includes videos and blog testimonials from TBI champions. These are service members and veterans telling their TBI stories of hope.

This September during national dog service month, A Head For The Future will release 2 new videos that will feature either the training or use of service dogs that have helped TBI champions on their road to recovery following the TBI. We encourage you to follow A Head For The Future on Twitter or Facebook. All right, so now it is time to answer some questions. If you haven't already done so, you may submit questions via the question pod located on the screen and we will answer as many as the time permits, so let me get back to my screen here.

Meg, I got to tell you that there are a ton of questions, a ton of dialog between the participants and we're so encouraged by that here. Let me get some of these questions. All right, so let's see.

Ms. Olmert: Let me just add. I've been watching some of it and it's great.

Dr. Heintz : I know, it's extraordinary, right? They're helping each other with these answers, so if someone [inaudible] themselves. All right, so let me go up in here. Is there ... one of the questions that came in that I thought was very interesting, is there any evidence and maybe you can go back to the thinking from the organization that shows that the dogs that you breed are better qualified in temperament than the rest of your dogs?

Ms. Olmert: I don't think so necessarily. There is definitely one paper that I could cite that shows that breed does make a difference in trainability and boldness. There are breed-related personality traits and cognitive traits which is why you get dogs that will round up cattle and others that won't. These xenotypes are very strongly bred into dogs. One of the main things about breeding dogs for service dogs is that you can track the genetic outcome over many generations. With a rescue dog, you don't have that vital information. Oftentimes the rescue dog can also have its own PTSD, which doesn't manifest oftentimes for up to a year, even longer. It's just a matter of ... I liken it to counting cards and poker. You want to know what you can know. You want to control what you can control or a population at risk like this and for a population that deserves the very best.

If we had people who were ... back in the day, people were much better and behavior experts. They would take a long time to cruise all of the rescue shelters and do the testing and find the percentage of dogs that might make great service dogs. It doesn't mean to say that they aren't. What we're saying is for people who are already struggling with communication and cognitive skills, with balance, with everything, we want dogs that are just going to melt into them and so that is what I've been saying. Like I said, there is one study I am aware of that does show

that 3 breeds, and golden retrievers and labs are in that mix of the most trainable dogs.

Dr. Heintz : All right, so moving on just for interest of time. Are there ongoing qualitative studies to your awareness that monitor and tracks the veteran in their training program through these dogs over a period of time?

Ms. Olmert: Not really, unfortunately. I'm not aware, John Moon might know. He's on here. I know that with Warrior Canine Connection, because our emphasis is on the training of the dogs, we have only placed 15 dogs in our 4 years. Of course, we are in constant communication and we are developing methods of following the care of the dogs so that we can have more quantitative, qualitative data on that, but I don't know how other organizations do it. I've never seen anything published on it and that is part of what the VA study wants to look at is how having a service dog affects symptoms of, in this case, they're looking at PTSD mainly.

Dr. Heintz : Okay, so Meg, we're predominantly talking about things on the East Coast. We have some West Coasters that want to know about resources for them. There seems to be a lot of service dog agencies but I don't know how ethical and empirically based they are so they want to know if there's any recommendations for some West Coast resources.

Ms. Olmert: ADI is probably the one that ... I mean they are the industry association that provides accreditation and so that would be ... I would look at their website. Warrior Canine Connection does have a program that's parallel to VA, so that's our West Coast site for now. I suppose that's really ADI is who I would point people to at this time, Assistance Dogs International.

Dr. Heintz : Okay, so is there any work in the community to improve service dog regulations and legislation? This question came from somebody who says they've seen service dogs at the VA that are clearly not properly trained.

Ms. Olmert: Yes. That's the dog before the cart or cart before the dog I guess. The Americans With Disabilities act was amended to say that people could have service dogs for emotional support without their being a definition of what a service dog for emotional support was trained to do. It was a very well-meaning thing but there are no standards that are part of the certification process. That's part of the [inaudible] Warrior Canine Connection and John Moon and a lot of us are trying to do is to establish evidence-based standard of what can be done. It's why again we use dogs that we know the breeds r highly social. We train to the highest standard which is mobility training even if the dog doesn't end up being a mobility service dog, which [inaudible] because it's a very special dog that makes that cut but they're trained to a very high standard. We do have ADI accreditation with Warrior Canine Connection.

We feel very strongly about that. We too see at Walter Reed and NICO, dogs come through the door with vests on that are aggressive. We've had to intervene because we're the dog specialists, which isn't fun to do. It is a

problem. It's a fixable problem and it requires coordinated leadership and understanding. One of the things we're up against are people saying dogs work, everybody should have a dog. No, no, no, everybody should not have a dog and not everybody should have a child. It's very important. We're at the height of dog ownership and bottom of understanding what dog behavior is. There's ... we've got some explaining to do. We have a lot of learning to do and leadership to provide.

Dr. Heintz : So I'm reading some of the chats coming in here. I think people agree with you. I'm not sure if they're saying true to the other comments, but it seems to correlate with your not everybody should have dogs and/or children. Resonating with our people here.

Excellent, so I have another question for you. How does the Wounded Warrior go about applying for a service dog within your program?

Ms. Olmert: Contact Warrior Canine Connection. It's unfortunate that we have so few dogs because as I've said again the emphasis at this time is on the training and we have to expand our program so that we can have programs in lots of places and be producing the dogs that are so desperately needed. But if you contact Warrior Canine Connection, Dr. Robert Kauffman is our medical advisor. This is another part of the program that a lot of people don't have, the resources to. We are very fortunate. Dr. Kauffman is the lead psychiatrist, he's a retired Navy captain. He specialized in PTSD and he came onboard with us. He does the interviews with people who have applied for service dogs to see how medically fit it would be.

That's the level of expertise that we want to bring to the field. Because again it's a counting cards part, you need as much clinical background as you can and then the rest is art. Pairing of the service dog with a veteran is an art. It is a social skill. You can bring all the science to bear but there's a lot of it that just comes down to the match, the dog picking the human. We just do what we can that way. Please reach out to Warrior Canine Connection, our website is somewhere listed here, and be in contact with us.

Dr. Heintz : I have so many questions about dogs over here, it's amazing to me. They're not so much concerned about [inaudible] dogs so is there any stress of confusion on the part of the dog that they have so many different trainers?

Ms. Olmert: That's a really good question. Remember the puppy petting portion of the program? Those dogs are passed from hands to hands in their first 6 weeks that they really have incredible exposure to lots of different people. Some dogs do adjust to it less well than others. When we see that, we make an adjustment about it. That's the hard part. We certainly nurture our dogs so that they are, this is a terrible phrase too in this context, but bomb-proof in that regard, socially bomb-proof. You want them to be really open to social engagement with lots of people because it will also

make them just as open to bonding to the person that they're eventually partnered with.

Like I said, dogs are living beings and you will get some that are not temperamentally predisposed to that and then they can adjust with that. They become something else if that doesn't work for them, they can become a therapy dog, they can become a facility dog, they can get placed with one person.

Dr. Heintz : Okay, so I'm going to combine 2 separate questions that relate to each other. The first question is how long is the wait for getting a dog and the second question is is there a registry of service dogs that utilize Walter Reed's facilities?

Ms. Olmert: I don't know and I don't know. The wait for a service dog from Warrior Canine Connection is probably pretty long. It depends because a lot of times what we're doing is sometimes the Warrior trainers do end up with the dogs. They're medically retired from the military and it's just the fit that made the most sense. I don't really know right now how long a wait would be so I would say that's a question for the Warrior Canine Connection website.

Is there a registry for service dogs at Walter Reed. I don't think so. You've got ... they have therapy dogs there. They have facility dogs there. We are the only program there that is a therapeutic intervention.

Dr. Heintz : Between the questions coming and also some of the chat items, there are some questions regarding protection for the dog, and one of the questions that came in is has there been any problems with the dogs basically being attached to a veteran but not being attached to families?

Ms. Olmert: Not yet. Again, we're very small end as we say in the science world. We've only placed 15 dogs and we do extensive orientation with the families. The families come out, they stay with us, we're in the process of creating a new facility at a farm that will have residential capacity so that the families can really live and be with the dogs prior to placement because you do want that to be a good fit.

Now again our dogs are so social that it would be hard to believe that we would never let a dog go rallying around their food or barking or any kinds of non-social behavior and they're out of the program. That's not happening. I think that's pretty ... we try to really watch for that.

Dr. Heintz : Have you guys seen all military branches improve the use of military dogs while in uniform?

Ms. Olmert: Say that again please.

Dr. Heintz : One of the questions that came in, have you seen all military branches approve the use of therapy and military service dogs while in uniform?

Ms. Olmert: We work mainly with the Navy and the Army at Walter Reed, and then our program out at VA is the VA. It's not branches so I don't know what the Marines and the Air Force are necessarily doing on that, I'm sorry to say. All branches of service are treated at Walter Reed and at NICO. There's certainly interest across the spectrum from the service members from the different branches so I don't know.

Dr. Heintz : I've also seen this discussed during a few questions and some chat items as well, but there was a question concerning incarcerated soldiers or service member veterans. Would you consider taking your programs to prison to train their service dogs?

Ms. Olmert: Yes. In fact one of the things that we ... by the way let me just say that I think Camp [inaudible] wants us to come down there so let's give the Marines a shoutout. I think that is something [inaudible] speaking at a school there, but I think that's right. We are in discussions with working with the veterans court program for veterans who have run a foul of the law and for ... granted these are not serious violent crimes but we want to be able to offer the service to have training program as a way of community service that will allow them to do something very positive and in lieu of incarceration. Some of it will also be probably in prisons as well. It is ... the reason that you see these profound effects at prisons is that it's the social synchrony that happens between humans and dogs. These are, for most people who have gotten into trouble with the law, these are social-based breakdowns so rebooting the social brain network is essential.

Dr. Heintz : It's so interesting because we have so many well-informed members in the audience today, but what are your thoughts on a national criteria or guidelines for service dog certification?

Ms. Olmert: Hang on just a second. I see that Robert Kauffman, who I summoned apparently, is answering Camp [inaudible]. I think he's gotten in on the Camp [inaudible] discussion. Good, you go there Bob. I'm sorry, what was the question?

Dr. Heintz : What are your thoughts on a national criteria or guidelines for service dog certification?

Ms. Olmert: What are our criteria?

Dr. Heintz : What are your thoughts on it? If you were to give a recommendation what would your guidance be for these criteria or guidance?

Ms. Olmert: Again the criteria, we're talking about apparently service dogs for traumatic brain injury and PTSD support because we know what they are for all the other service dogs, the vision and the hearing, and the various other ... scent detection and things like that. We feel very strongly that the dog's not be trained in any kind of guard dog capacity, that they do not ... that they ... for these particular issues that we're talking about, we know

how important it is that the dogs invite social engagement and act as social lubricants. That's the only way we feel you're going to get that brain system reconnected and robust again.

When you have dogs that are trained to sweep rooms or block the approach of a stranger, we feel quite strongly that that is not a good idea for lots of reasons. It supports paranoid thinking and because of the fabulous social synchrony that dogs pick up on nonverbally and through scent and everything else, if you are frightened of an approaching stranger and you put the dog on alert, get between me and this person, somebody could get bitten very easily that way. I think it's inviting a dangerous situation.

There's lots of reasons we feel that most clinically sound approach would be that the dogs have a very high degree of training in all social behaviors because they need to be welcomed everywhere they go and be ambassadors for the next one coming up behind them and that they actually invite social engagement and not turn it off because isolation is deadly to social mammals. It's deadly for people with traumatic brain injury and PTSD. It is not helping the program.

Dr. Heintz : One of the comments that I'm actually reading through the chat, my concerns for national certification is that it will eliminate people who can't afford it. That's an interesting thought, you have any replies to that?

Ms. Olmert: National certification, I don't know that that would eliminate people or make it more unaffordable. Right now it doesn't have national certification and is pretty unaffordable if you ask people what they are paying for their service dogs. I don't think setting up guidelines for it is the problem. I think having enough dogs, it's a matter of supply and demand too. What we need are more well-trained dogs and we need to understand what the training is going to be.

The training that we suggest and can provide to our service members who might have ... piecing apart PTSD and TBI is damn near impossible, as is piecing apart PTSD and physical disability, some [inaudible] blown up and missing limbs, they probably have PTSD too. There are certain physical manifestations that we see over and over, people shaking their legs, the leg bobbing up and down, the knee bobbing up and down. We train the dogs to put the foot on the knee. Get the person's attention and/or maybe get up in the lap, when they see somebody holding their head in an anguished way, get up in that lap, break up that moment and as I mentioned in the sleep, disrupting nightmares.

Those are some very identifiable, quantifiable, qualifiable training methods that can be used. Much of it will happen that will make a dog a really good psychological, emotional support dog would be the quality of the bond. How well you read them, how well they read you, and then it gets into very subtle, very sophisticated things that go on between human and dogs.

Dr. Heintz : Okay, so I think that we're going to wrap up the question portion right now. One of the big actual takeaways, I was taking notes during the presentation myself. The one takeaway that I really ... that's going to stick with me is that meaningful experiential learning translates to behavior change, and I think this applies across the board with so many therapeutic techniques that we try on how the supplies to dogs, I love that you kept saying the dogs at heart. With that being said, let me move on to a few items over here.

Ms. Olmert: [inaudible] to everybody and I'm sorry I didn't get to answer your questions and I didn't get any negative ones and I bet they're out there, so you can hit me up at Warrior Canine Connections.

Dr. Heintz : Okay, so after the webinar please visit [dcoe.cdf.pesgce.com](http://dcoe.cdf.pesgce.com) to complete the online CE evaluation and download or print your CE certificate or certificate of attendance. This evaluation period will be open through Thursday, August 25, 2016. Please note that you will only need to evaluate Ms. Meg Olmert to obtain your CE credits.

To help us improve future webinars, we also encourage you to complete the feedback tool that will open in a separate browser on your computer. To access the presentation and resource for this webinar, you may download them from the files pod on the screen or at the DVBIC website, [dvbic.dcoe.mil/online-education](http://dvbic.dcoe.mil/online-education). An audio recording and edited transcript of the close captioning will be posted to that link in approximately one week.

The chat function will remain for an additional 10 minutes after the conclusion of the webinar to permit attendees to continue to network with each other, and I think this group might need that time. [inaudible] we're impressed by it over here. The next DCOE psychological health webinar entitled Compassion Fatigue is scheduled for August 25 and that is from 1 to 2 Eastern Time and the next DCOE TBI webinar, Unique Perspective For Women With Mild TBI: Gender Differences and Coping Strategies is scheduled for October 13, 2016. Again from 1 to 2:30 Eastern Time. Very important, save the date. The DCOE 2016 Summit: Advances, Current Diagnostics and Treatments of Psychological Health and Traumatic Brain Injuries in Military Health Care is scheduled for September 13 to 15.

Thank you all for attending. It is a total privilege and honor to work with those that care and advocate for our service members better and families. Everybody have a great day, take care.

Operator: This does conclude today's conference call. Thank you for your participation. All participants may disconnect at this time.