




### Expanding the Evidence-Base for Alternative and Complementary Health Practices: Advancing Treatment Options for Post- Traumatic Stress Disorder

Elspeth Cameron Ritchie, M.D., M.P.H.<sup>1</sup>, Maryam Navaie, Dr.P.H.<sup>2</sup>, Anita H. Hickey, M.D.<sup>3</sup>, Eric T. Stedje-Larsen, M.D.<sup>4</sup>, Jessica C. Smith, M.P.H.<sup>2</sup>, and Eugene G. Lipov, M.D.<sup>5</sup>

<sup>1</sup>Department of Mental Health, District of Columbia, Washington, D.C.  
<sup>2</sup>Advance Health Solutions, LLC, Washington, D.C.  
<sup>3</sup>Department of Anesthesiology, United States Naval Hospital, Okinawa, Japan  
<sup>4</sup>Department of Anesthesiology, Naval Medical Center San Diego, San Diego, CA  
<sup>5</sup>Chicago Medical Innovations, Hoffman Estates, IL

APHA's Annual Meeting, Boston, MA  
November 4, 2013





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### Corresponding Authors and Disclaimer

<p><b>Corresponding Authors:</b>            Elspeth Cameron Ritchie, M.D., M.P.H.            Chief Medical Officer            Department of Mental Health            District of Columbia, Washington, D.C.            Tel: (202) 673 – 2200            Email: <a href="mailto:elspeth.ritchie@dc.gov">elspeth.ritchie@dc.gov</a></p> <p>Maryam Navaie, Dr.P.H.            President and Chief Executive Officer            Advance Health Solutions, LLC            San Diego, CA            Tel: (858) 646-3050            Email: <a href="mailto:mnavaic@advancehealthsolutions.com">mnavaic@advancehealthsolutions.com</a></p>	<p><b>Disclaimer:</b></p> <ul style="list-style-type: none"> <li>• The views expressed in this presentation are those of the authors, not of the Navy, Army, Department of Defense, or any other government agency</li> </ul>
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### Introduction

- Post-traumatic stress disorder (PTSD) is among the most common Axis I disorders, with an estimated lifetime prevalence of 7% in the U.S. population, 10-20% among active duty service members and 35-40% among veterans.<sup>1-3</sup>
- Current evidence-based PTSD therapies have limited reach and impact<sup>2-4</sup>:
  - Stigma
  - Transient mobility that limit time availability for therapy (e.g., military)
  - High rates of co-occurring medical and psychosocial conditions that add complexity to treatment regimen and poor patient compliance
  - Traditional side effects
  - Patient preferences
  - Perverse incentives (e.g., military and veterans)
- Overall, existing evidence-based treatments have a <30% success rate<sup>1</sup>, leading physicians to explore the potential benefits of alternative and complementary health practices (AHP) for improved clinical management of PTSD.


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**Virtual Reality for PTSD**

- A systematic review of VRET studies in the treatment of PTSD suggests potential efficacy for different types of trauma, most notably among veterans.<sup>9</sup>
- However, the four randomized clinical trials included in the systematic review each trial had methodological limitations that introduced a substantial risk of bias, as noted by the authors of the studies.<sup>9</sup>



Source: U.S. Air Force. "Virtual Reality, PTSD." [www.andrews.af.mil](http://www.andrews.af.mil)

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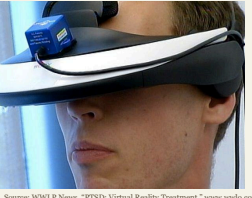
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**Virtual Reality for PTSD**

- Nonetheless, the growing evidence suggests that VRET is efficacious in PTSD treatment, even in individuals who are resistant to traditional exposure therapy.<sup>9,10</sup>
- Further virtual reality therapy exploration is needed with more robust trials and results replication to evaluate VRET efficacy in PTSD symptom reduction.



Source: WWLP News. "PTSD: Virtual Reality Treatment." [www.wwlp.com](http://www.wwlp.com)

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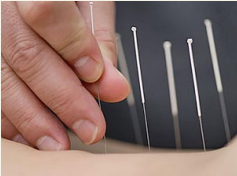
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**Acupuncture for PTSD**

- Various acupuncture techniques have shown promise for reducing trauma spectrum response (TSR), which includes some PTSD symptoms, but there is a lack of sufficient evidence for complex PTSD (e.g., refractory PTSD or PTSD with comorbid conditions).<sup>11,12</sup>
- In general, the current body of evidence indicates acupuncture benefits for treating headaches, anxiety, sleep disturbances, depression, and chronic pain.<sup>13</sup>



Source: AsianScientist. "Use of Acupuncture by the US Military to Treat Battlefield Injuries, PTSD." [www.asianscientist.com/health-medicine](http://www.asianscientist.com/health-medicine)

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**Acupuncture for PTSD**

- Several types of acupuncture have shown promise for use in combat situations as well as in clinical settings for PTSD.<sup>14-16</sup>
  - Combat-specific “battlefield acupuncture” involves needling 5 points that influence the cingulate cortex and thalamic nuclei.<sup>14,15</sup>
- In particular, auricular acupuncture has demonstrated efficacy in relieving acute pain symptoms and chronic pain symptoms.<sup>14</sup>



Source: Sargent PD, Campbell CS, Richter KE, McLay RN, Koffman RL. Integrative Medical Practices for Combat-Related Posttraumatic Stress Disorder. *Psychiatric Annals* 2013; 43(6): 183-187.

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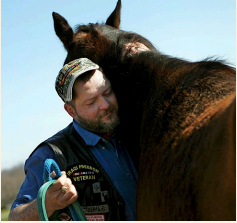
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**Animal-Assisted Therapy for PTSD**

- Service dog training and equine-assisted therapy are being used as purpose-driven interventions for managing PTSD and mild TBI by facilitating psychological and social improvement and functional independence.<sup>17,18</sup>
- Studies have shown optimization of social support can improve PTSD symptom treatment by increasing endogenous levels of oxytocin, and this desired effect may be achieved in the use of therapy animals like dogs and horses.<sup>19</sup>



Source: Military Times. “Equine Therapy.” [blogs.militarytimes.com/line-of-sight/](http://blogs.militarytimes.com/line-of-sight/)

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**Animal-Assisted Therapy for PTSD**

- Anecdotal reports from clinician and program instructors indicate that the use of service dogs can lead to better health and quality of life outcomes including:<sup>20</sup>
  - Increase in patience, impulse control, and emotional regulation
  - Improved ability to display affect
  - Improved sleep
  - Decreased depression
  - Decrease in startle response
  - Decrease in pain medication use
  - Increased sense of belonging
  - Improved family dynamics
  - Lowered stress levels and increased sense of calm



Source: Yount B, Ritchie EC, St. Laurent M, Chesley P, Olmert MD. The Role of Service Dog Training in the Treatment of Combat-Related PTSD. *Psychiatric Annals* 2013; 43(5): 292-296.

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## Mindfulness-Based Cognitive Therapy for PTSD




- Although previous studies of mindfulness have included anxiety disorders<sup>11,24</sup>, to date there is little evidence of mindfulness-based therapy application specifically for PTSD, indicating need for further exploratory research.
- Other considerations including access-related barriers to care as well as mitigating the financial burdens of care make mindfulness as an attractive option for PTSD management.



Source: University of Michigan Health System. "Mindfulness therapy might help veterans with PTSD." [www.uofmhealth.org](http://www.uofmhealth.org)



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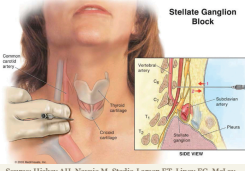
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## Stellate Ganglion Block for PTSD




- SGB, a well-established pain management procedure, is the first promising biologic treatment that is emerging in the literature for PTSD.<sup>30</sup>
  - A 5 to 10-minute procedure that involves injecting a local anesthetic at the right-sided C6/C7 cervical vertebrae
- Since 2008, numerous reports have documented SGBs rapid effects on reducing PTSD severity among veterans, active duty service members and civilian populations.<sup>31-34</sup>



Source: Hickey AH, Navale M, Stedje-Larsen ET, Lipow EG, McLay RN. Stellate Ganglion Block for the Treatment of Posttraumatic Stress Disorder. *Psychiatric Annals* 2013; 43(1):87-92.



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## Stellate Ganglion Block for PTSD



- Growing number of successful case series of SGB treatment in PTSD:
  - 83 cases among veterans and civilians with refractory PTSD treated with SGB revealed significant reductions in PTSD symptoms clusters associated with re-experiencing and hyper-arousal (received, on average, 1.6 SGB injections)<sup>31-32-35</sup>
  - 6 cases among active duty service members with markedly reduced PTSD symptoms observed in Army cohort (received, on average 1.3 SGBs)<sup>33</sup>
  - 9 cases among active duty Navy and Marine Corps service members with improvement in PTSD symptoms observed by Navy physicians (received 2 SGBs)<sup>34</sup>
- A randomized placebo-controlled SGB trial is actively being conducted by Navy Medicine



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**Conclusions**

- More rigorous future research is needed to address the many important remaining questions about ACHP for PTSD:
  - Efficacy
  - Comparative effectiveness
  - Mechanism(s) of action
  - Optimal dosing
  - Differential responses among subgroups of patients with PTSD
- Although the current ACHP evidence-base for PTSD precludes our ability to draw definitive conclusions to inform clinical practice or public policy, the available evidence points to a promising opportunity for a much needed paradigm shift in PTSD treatment.

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