

**REPORT DOCUMENTATION PAGE**

*Form Approved*  
OMB No. 0704-0188

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.  
**PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

<b>1. REPORT DATE (DD-MM-YYYY)</b> 04/24/2017	<b>2. REPORT TYPE</b> Master's Thesis	<b>3. DATES COVERED (From - To)</b> SEP 2016- APR 2017
--	--	---

<b>4. TITLE AND SUBTITLE</b> PTSD: Arming Marine Corps Leaders in its Eradication	<b>5a. CONTRACT NUMBER</b> N/A
	<b>5b. GRANT NUMBER</b> N/A
	<b>5c. PROGRAM ELEMENT NUMBER</b> N/A

<b>6. AUTHOR(S)</b> Coker, Adam C., Major, USMC	<b>5d. PROJECT NUMBER</b> N/A
	<b>5e. TASK NUMBER</b> N/A
	<b>5f. WORK UNIT NUMBER</b> N/A

<b>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</b> USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068	<b>8. PERFORMING ORGANIZATION REPORT NUMBER</b> N/A
--	--

<b>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</b>	<b>10. SPONSOR/MONITOR'S ACRONYM(S)</b>
	<b>11. SPONSOR/MONITOR'S REPORT NUMBER(S)</b> N/A

**12. DISTRIBUTION/AVAILABILITY STATEMENT**  
Approved for public release, distribution unlimited.

**13. SUPPLEMENTARY NOTES**

**14. ABSTRACT**  
The Marine Corps is attempting to alleviate PTSD by implementing programs that educate leaders and their Marines about PTSD while they attempt to terminate the stigma associated with it. Although leaders cannot conduct treatment of PTSD on their Marines, they need to understand the different methods available and the effects each method has. Leaders need to always keep an open mind regarding new treatment options and support research associated with them, and seek options such as complementary and alternative therapies to use down to the unit level.

**15. SUBJECT TERMS**  
PTSD; Combat Stress; Complementary and Alternative Therapy; Stigma with PTSD; OSCAR Teams

<b>16. SECURITY CLASSIFICATION OF:</b>			<b>17. LIMITATION OF ABSTRACT</b>	<b>18. NUMBER OF PAGES</b>	<b>19a. NAME OF RESPONSIBLE PERSON</b>
<b>a. REPORT</b>	<b>b. ABSTRACT</b>	<b>c. THIS PAGE</b>			USMC Command and Staff College
Unclass	Unclass	Unclass	UU	42	<b>19b. TELEPHONE NUMBER (Include area code)</b> (703) 784-3330 (Admin Office)

*United States Marine Corps  
Command and Staff College  
Marine Corps University  
2076 South Street  
Marine Corps Combat Development Command  
Quantico, Virginia 22134-5068*

MASTER OF MILITARY STUDIES

---

---

**TITLE:**

PTSD: ARMING MARINE CORPS LEADERS IN ITS ERADICATION

SUBMITTED IN PARTIAL FULFILLMENT  
OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF MILITARY STUDIES

**AUTHOR:**

ADAM C. COKER, MAJOR, USMC

AY 16-17

---

---

Mentor and Oral Defense Committee Member: Dr. Rebecca Johnson  
Approved: [Signature]  
Date: 24 April 2017

Oral Defense Committee Member: Dr. Frank Marlo  
Approved: [Signature]  
Date: 24 April 2017

## Executive Summary

**Title:** PTSD: Arming Marine Corps Leaders in its Eradication

**Author:** Major Adam Coker, United States Marine Corps

**Thesis:** Leaders not only need to utilize valid research-based evidence and programs to prevent, identify, and support troops suffering from PTSD, but they can also utilize complementary and alternative therapies, which are easily attainable and cost-effective, down to the unit level. Likewise, the more folks that normalize communication about stressors, the less they will place a stigma on PTSD, and individuals are more likely to seek help.

**Discussion:** Though the terms used to describe PTSD symptoms have changed many times, the symptoms themselves have been with us for many centuries. Marine Corps Reference Publication 6-11C charges all Marine Corps leaders in the preservation of psychological health of their Marines and Sailors, but there is no clear understanding of how to do this. The definition of PTSD has even changed in every version of the *Diagnostic and Statistical Manual of Mental Disorders* since it first appeared in *DSM-III*. The Marine Corps uses its OSCAR program to educate Marines and attempt to keep them in the “Green” zone of the combat and operational stress continuum model. The OSCAR program has also been effective at reducing the stigma associated with PTSD, although there is still a high level of underreporting bias, which is detrimental to the health of units as a whole. The DSTRESS line is a method Marines are encouraged to utilize, which could lead to successful self-referrals, but leaders are still held ultimately responsible. Although leaders cannot conduct treatment of PTSD on their Marines, they need to understand the different methods available and the effects each method has. Although clinicians do not consider complementary and alternative therapies first-line treatments, they have shown promising improvements in PTSD patients, and they are typically very cost-effective.

**Conclusion:** The Marine Corps is attempting to alleviate PTSD by implementing programs that educate leaders and their Marines about PTSD while they attempt to terminate the stigma associated with it. The Marine Corps needs to continue the OSCAR program in order to give leaders the tools necessary to combat PTSD, but leaders need to continually improve the OSCAR program with evidence-based findings and results from unit leaders. Finally, leaders need to always keep an open mind regarding new treatment options and support research associated with them, and seek options such as complementary and alternative therapies to use down to the unit level.

## DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

QUOTATION FROM, ABSTRACTION FROM, OR REPRODUCTION OF ALL OR ANY PART OF THIS DOCUMENT IS PERMITTED PROVIDED PROPER ACKNOWLEDGEMENT IS MADE.

*Table of Contents*

	Page
DISCLAIMER .....	iii
PREFACE .....	v
INTRODUCTION .....	1
BACKGROUND .....	2
PREVENTION .....	4
IDENTIFICATION.....	11
TREATMENT .....	18
CONCLUSION.....	26
APPENDIX A: ACRONYMS .....	28
ENDNOTES .....	30
BIBLIOGRAPHY.....	33

## Preface

The following paper was inspired not only by serving with fellow Marines and other service members after many years of war in Iraq and Afghanistan but also by other close family members. My grandfather served in the US Army as a combat medic in World War II and was captured by the Germans in the Battle of the Bulge. He did not talk much about his experiences while I was growing up, but after I had become a Marine, he began talking about being a prisoner of war and the incidents that accompanied it. He then became involved in the American Ex-Prisoners of War Organization and further spoke about his experiences. I witnessed not only a change in his demeanor, but he was more likely to convey his emotions; this occurred by just opening up and talking about things he suppressed for many years. My grandfather's experiences guided me through many tough and trying times; I knew that whatever I was going through, it was not nearly as difficult as the things he endured. Thanks Pop!

My wife Ashlie worked for the Marine Resiliency Study I & II (MRS) which was a Federally-funded research study based out of San Diego, CA. This study sought to find positive predictors of PTSD and determine the genetic predisposition of an individual to PTSD. The study did find a gene responsible for PTSD—PRTFDC1—although discussion of these implications is largely out of the scope of this paper. Nevertheless, Ashlie's enthusiasm for the topic and her discussions of it peaked my interest and made me want to learn more about how to take care of our veterans. Ashlie became a sounding-board for all my ideas in the paper, and as always stood beside me as my source of strength.

Finally, this paper would not have been possible without the guidance and support of my mentor Dr. Rebecca Johnson, Dean of Academics, Marine Corps War College. Thank you for your patience and support.

## **Introduction**

How do leaders arm themselves to prevent, identify, and support troops suffering from post-traumatic stress disorder (PTSD)? Although the name has changed many times, the symptoms of PTSD have beleaguered humanity since the first exposure to a traumatic event. Marine Corps Reference Publication (MCRP) 6-11C states: “Leaders at all levels are responsible for preserving the psychological health of their Marines, Sailors, and family members, just as they are responsible for preserving their physical health.”<sup>1</sup> Leaders not only need to utilize valid research-based evidence and programs to prevent, identify, and support troops suffering from PTSD, but also employ complementary and alternative therapies, which are easily attainable and cost-effective. Likewise, the more folks that normalize communication about stressors, the less they will place a stigma on PTSD, and individuals are more likely to seek help.

Just as war itself is not a new matter, neither is the stress that plagues individuals that fight their nation’s wars. Many tools are available to prevent PTSD, and the Marine Corps has implemented programs, such as the Combat and Operational Stress Control Program and Deployment Health Assessments. PTSD has a long and well-documented history. Although prevention of PTSD is a relatively new idea, its implementation could affect thousands of military personnel for the better, and it could save money. Identification continues to be important; however, researchers are finding more and more new ways to be sure of the correct diagnosis, but ideally Marines are responsible for identifying symptoms in themselves and other Marines to get the help they need. Treatments are individual to each patient; what works for one may not have any notable effect on another individual. Thankfully, there are various avenues of treatment one can employ until researchers discover an effective method. Overall, it would be beneficial to see the Marine Corps take a stronger stand and spend money to make more options

readily available in the fight against PTSD. These options will restore the psychological health of PTSD identified Marines, reintegrate them back into their units or society, and not abandon those who have sacrificed a part of their health and well-being for others.

### **Background**

The term posttraumatic stress disorder was unheard of until it emerged from the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* in 1980. The DSM-III defines PTSD as “the development of characteristic symptoms following a psychologically traumatic event that is generally outside the range of usual human experience. The characteristic symptoms involve reexperiencing the traumatic event; numbing of responsiveness to, or reduced involvement with, the external world; and a variety of autonomic, dysphoric, or cognitive symptoms.”<sup>2</sup> The earliest documentation of symptoms of what are now known as PTSD could be as early as 1900 BC in Egypt, in which a physician described the hysterical reactions of a patient after a traumatic experience.<sup>3</sup> King David describes his psychological quandaries after battle in Psalms 55:4-5: “My heart is in anguish within me; the terrors of death have fallen on me. Fear and trembling have beset me; horror has overwhelmed me.”<sup>4</sup>

Greek literature also contains references to combat-related stress from Herodotus, who wrote of an Athenian soldier after the battle of Marathon in 490 BC. Johannes Hofer, a Swiss doctor, devised the term “nostalgia” in 1678 to describe the symptoms of PTSD. Napoleon’s chief surgeon, Dominique Jean Larrey, identified several factors important in preventing nostalgia and prescribed a course of treatment that many psychiatrists today would still consider valid.<sup>5</sup> During the Civil War, Dr. Jacob Mendes DaCosta termed psychological distress “Irritable Heart;” later known as DaCosta’s Syndrome. There were no new diagnoses, but the same symptoms as hundreds of years before. Additionally, due to the lack of understanding of combat

stress disorders, commanders often referred to those suffering from combat stress as malingerers or cowards, and in turn, the soldiers were labeled deserters, in which firing squads executed many of them. Ten percent of the Union and Confederate forces deserted; many of these individuals could have been suffering from PTSD.<sup>6</sup> In World War I, Dr. Charles Myer created the term “shell shock” to explain more of the same. Many troops had no physical injuries but were dazed and disoriented nonetheless. Although the stigma remained with commanders who saw the symptoms as a sign of weakness, many physicians made great strides in understanding and treatment of PTSD. The Neuropsychiatry Consultant to the American Expeditionary Forces in World War I, Thomas Salmon, inaugurated the first rational system of echelon psychiatry in the US military. The goals of this system intended to treat the patient in the field and return him to his unit.

Many of the successful treatments on the battlefield of World War I seem to have been forgotten as World War II began. General George S. Patton, in the Second World War, was the embodiment of the stigma against PTSD. He believed men nothing more than a coward if they could not do their duties.<sup>7</sup> Initial psychiatric casualty rates of the Korean War were three times higher than in World War II. Fortunately, the principles of forward treatment were reinstated, and therefore reduced the number of casualties. A rotation system and increased rest and relaxation were also implemented. The Korean War, however, brought about a new psychiatric problem with troops in rear-echelon units. These troops soon outnumbered combat troops, and they quickly became bored and homesick, then turned to the use of alcohol and drugs.<sup>8</sup> Because leaders largely ignored the issues of these rear-echelon troops, they would become the most prominent psychiatric casualty of the Vietnam War. Psychological casualties of the Vietnam War did not occur as rapidly as they had in past wars due to its slow build-up. It wasn't until the

outcome of the war that the situation worsened; Veterans sought help for trauma that was occurring months and even years after their initial combat exposure—it was termed “post-Vietnam syndrome.”<sup>9</sup> Finally, the Gulf War of 1990-1991 brought to the forefront once again a choking reality that PTSD is here to stay.

The recent wars in Iraq and Afghanistan have increased those with PTSD to an epidemic level. Although the United States is spending billions of dollars on PTSD research, it is unclear if the treatments are effective. A 2014 Congressionally mandated Institute of Medicine panel reported: “Without tracking outcomes, neither the Department of Defense (DOD) nor the Department of Veterans Affairs (VA) knows whether it is providing effective or adequate PTSD care, for which they spent \$294 million and more than \$3 billion, respectively, in 2012.”<sup>10</sup> They reported that roughly 5% of all troops and 8% of those who served in Iraq or Afghanistan had been diagnosed with PTSD. The number of veterans seeking care for PTSD jumped from 190,000 in 2003 to more than 500,000 in 2012. The evidence further reinforces that PTSD is a persisting issue. In 2013, the American Psychiatric Association published DSM-V and again moved PTSD to a new class of trauma and stressor-related disorders.<sup>11</sup> This reclassification attempts to further distance PTSD from a character flaw causation to an event-driven causation. Understanding that PTSD stems from experiencing a traumatic event makes it difficult to fathom how to prevent it, but education, training, and experience can increase resiliency and diminish the effects of the potentially traumatic event (PTE).

### **Prevention**

How can leaders prevent PTSD in troops? Short of eliminating the stressor altogether, they cannot. A better focus on prevention would be to mitigate the issues enough so that Marines can take an appropriate course of action in an effort to recover and return to their normal as soon

as possible. Most assume that any form of intervention equates to more money, and therefore, they back away. The ones who suffer are those who need help most. By spending a small amount of time and money on things as simple as a modified physical that measures heart rate variability (HRV), Marine Corps leaders could adapt the already implemented OSCAR program and the DoD's health assessments to possess a multi-faceted tool in the prediction and prevention of PTSD. The importance of having a predictor to PTSD is akin to knowing which people have the breast cancer gene. Not necessarily all troops will develop PTSD just because they are likely to, but at least it does shine a light for leaders in the right direction rather than them standing in the dark.

The Marine Corps has a logical method for everything it does. The rigorous training that occurs through repetition ingrains the desired response time and again. Various studies have shown factors that enhance the likelihood of PTSD, especially IQ.<sup>12</sup> Modest additions that would require small effort, such as capturing the HRV of individuals prior to deployment, could garner enough information to successfully identify and prevent PTSD from escalating. Continued implementation of the Battlemind and OSCAR programs and the DoD health assessments will offer correlating data as to the ongoing psychological health of troops, which then leads to identification.

Marines begin rigorous physical and mental training from the moment they arrive at basic training. The training at boot camp introduces recruits to increasing amounts of stress because the Marine Corps trains recruits for conditions of combat. They learn tasks through repetition and therefore, begin performing through muscle memory. In their book, *Combat Stress Injury: Theory, Research, and Management*, authors Figley and Nash describes how training and experience can mitigate certain stressors in war:

In an operational theater, stressors come fast and furious, and they pile high and deep. Through training and experience, warfighters can accommodate to some of them – they can change themselves physically and mentally to be as suited as they can be to meet the challenges they face. And through the proper equipment, teamwork, and leadership, they can neutralize, or at least mitigate, a portion of the stress of war.<sup>13</sup>

This indoctrination is the Marine Corps' first attempt to ensure the individual Marine is physically fit and mentally tough to endure the rigors of combat. The training has proven to be effective, but it cannot ensure the Marine will not encounter PTEs that could lead to PTSD. Many large, nationally representative surveys have provided evidence of the prevalence of PTSD in the general population. This information could be useful in determining the predisposition of an individual to getting PTSD in the military.

One of the first large-scale surveys that examined the distribution and factors associated with psychiatric disorders in the United States was the National Comorbidity Survey (NCS), conducted by the National Institute of Mental Health (NIMH) from 1990 to 1992. Ten years later, NIMH conducted the National Comorbidity Survey–Replication (NCS–R). The NCS found PTSD prevalence to be twice as great in women as in men, and the NCS–R estimated it to be 2.7 times greater in women than in men.<sup>14</sup> The Institute of Medicine's *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment* states: "Men were more likely to report having experienced a traumatic event over their lifetimes, but women were more likely to meet criteria for PTSD, have PTSD symptoms four times as long as men, have a poorer quality of life if they have PTSD, and develop more comorbid psychiatric disorders."<sup>15</sup> There is also some evidence that race and ethnicity has an effect on the development of PTSD. The National Epidemiologic Survey on Alcohol and Related Conditions shows that the risk of PTSD was significantly higher in blacks and lower in Asians than in whites.<sup>16</sup> The National Epidemiologic Survey on Alcohol and Related Conditions also found that the risk of PTSD was

“significantly higher in lesbians and gays, bisexuals, and heterosexuals with any same-sex partners than it was in the heterosexual reference group.”<sup>17</sup> Moreover, several studies have shown intelligence quotient (IQ) to be inversely related to the risk of PTSD. Researchers conducted a seventeen-year study in Michigan of randomly selected newborns and found that children who had an IQ of 115 or greater by the age of six years old had a decreased risk of PTSD after trauma exposure.<sup>18</sup> Another study in New Zealand showed similar findings: “IQ assessed at the age of five years was inversely associated with risk for developing PTSD by the age of 32 years.”<sup>19</sup>

Studies have proven that among veterans exposed to potentially traumatic events, people who had the highest Armed Forces Qualification Test (AFQT) scores (76–99 and 56–75) had significantly less risk of PTSD than persons who had the lowest category of AFQT scores (0–33).<sup>20</sup> Ongoing research has also shown that genetics play a significant factor in an individual’s risk of PTSD, but that would be out of the scope of screening future Marines.<sup>21</sup>

The Marine Resiliency Study (MRS) has recently discovered a correlation in pre-deployment heart rate variability (HRV) with the risk of post-deployment PTSD. HRV is essentially the variation in heartbeat intervals, which is an excellent measure of autonomic nervous system (ANS) function—regulation of the body’s internal environment or homeostasis.<sup>22</sup> The study utilized a total of 2,160 male Marines from various combat-related MOSs. HRV was measured pre-deployment and post-deployment (six months after deployment) using a finger photoplethysmograph (PPG), which measures beat-to-beat blood volume changes. The Clinician-Administered PTSD Scale (CAPS) was used to determine the presence of PTSD in both pre-deployment and post-deployment visits. The MRS team concluded that lower HRV before deployment directly correlated with risk of post-deployment PTSD diagnosis.<sup>23</sup> Fifteen

point eight percent of Marines with low HRV pre-deployment were diagnosed with PTSD symptoms post-deployment, vice only 3.7% of Marines without low HRV were diagnosed with PTSD symptoms post-deployment.<sup>24</sup> Using this information paired with knowledge of increasing HRV using mindfulness-based interventions—particularly meditation—could reduce the overall risk of troops diagnosed with PTSD.<sup>25</sup>

The DoD and the VA have various programs and services designed to prevent, screen for, diagnose, and treat PTSD. Many of these programs are under different commands and dispersed across different service branches, installations, and medical facilities. Each service has developed and implemented programs that intend to cultivate resilience. The Institute of Medicine's *Preventing Psychological Disorders in Service Members and Their Families: An Assessment of Programs* defines psychological resilience as “the ability to cope with or overcome exposure to adversity or stress.”<sup>26</sup> Researchers at Walter Reed Army Institute of Research developed the US Army's resilience program: Battlemind. This program is a “psycho-educational intervention that uses a cognitive and skills-based approach to normalize reactions to operational stress, to build resilience, to ease the transition to home, and to promote self-recognition of psychological problems, help seeking, and identification of difficulties in others.”<sup>27</sup>

The Navy and Marine Corps developed the Combat and Operational Stress Control (COSC) Program to promote psychological health and mental disorder prevention. The COSC gives leaders three tools for fostering psychological health: the combat and operational stress continuum model, five core leader functions, and combat and operational stress first aid. This information is disseminated using the Operational Stress Control and Readiness Program (OSCAR). The OSCAR program trains mentors at the operational unit level to manage the stress of unit members. The combat and operational stress continuum model consists of four zones:

Ready (Green), Reacting (Yellow), Injured (Orange), and Ill (Red). MCRP 6-11C states the goal of all COSC is to utilize the model to “keep Service members, units, and families in the Green ‘Ready’ Zone as much as possible and to return them to that zone as quickly as possible after leaving it.”<sup>28</sup> The five core leader functions—strengthen, mitigate, identify, treat, and reintegrate—were developed to complement the stress continuum model to preserve force readiness and maintain individual health and well-being.

The first two core leader functions are how the Marine Corps endeavors to prevent PTSD. Strengthen refers to how commanders can enhance the resilience of their Marines through training, social cohesion, and leadership. It is important to note that leaders must strengthen their Marines in four crucial areas—body, mind, spirit, and social—to ensure the Marines responds appropriately when confronting a stressful situation. Training must be tough and realistic to develop physical and mental strength and endurance to build resilience, but it must not push Marines into the Orange Zone in the stress continuum model. Social cohesion is defined as: “mutual trust and support in a social group developed through shared experiences of accomplishment and overcoming adversity over time in a group with a stable membership.”<sup>29</sup> Maintaining a stable unit is a challenge to leaders considering the frequency Marines rotate into and out of a given unit. The Marine Corps could mitigate this to some extent by identifying Marines’ MOSs early and forming groups of individuals that would stay together through training and remain a group as they arrived at their Fleet unit. Several studies show that unit cohesion is positively correlated with psychological well-being, and negatively correlated with psychological distress.<sup>30</sup> The Mental Health Advisory Team (MHAT) V report showed evidence that unit cohesion had a considerable protective factor against negative psychological stress.<sup>31</sup> Leadership is the essential factor that ultimately leads to proper training and unit cohesion. “Lead

from the front” is a well-known saying in the Marine Corps, but does not always mean literally leading his Marines into battle against a well-defended enemy. Leaders must be that resource of courage and model of ethical and moral behavior that their subordinates can draw upon during arduous times. The MHAT V report also found that poor leadership and command climate is associated with increased stress and other mental health symptoms.<sup>32</sup>

The second core leader function is for leaders to mitigate the stress of their subordinates. Eliminating the stressor itself is the most definite way to reduce stress, but eliminating stressors altogether is not possible, especially in a combat situation. Unit leaders can utilize after action reviews (AARs) in small groups to restore lost confidence in self, peers, leaders, equipment, and mission to increase feelings of safety and security in the unit.<sup>33</sup> Leaders need to set and achieve realistic unit goals and acknowledge success when the unit reaches goals and mentor those who commit misconduct to restore their honor. There are other tools available in the COSC program that leaders need to utilize to mitigate the effects of stress on their subordinates, but the principal point of mitigation is for leaders to identify the most prominent stressor their Marines have and reduce it in the best way possible.

The DoD has a series of assessments for health during the deployment cycle for all service members. These evaluations—pre-deployment health assessment, the post-deployment health assessment (PDHA), and the post-deployment health reassessment (PDHRA)—ensures that all service members who were deployed for more than thirty days are monitored periodically for both physical and mental health concerns. These assessments are important in the prevention of PTSD because if an individual is identified early, it is possible to eliminate the effects of PTSD all together, but the assessments are also essential in the identification of individuals with PTSD symptoms, which is discussed in the next section.

PTSD is not new, yet it is still greatly misunderstood. For many years, the only course of action was a defensive one after the patient showed significant symptoms. Leaders are beginning to understand how important this relatively new idea of preventing PTSD is. Scholars have done much research, and even more is coming out every day. A more integrated approach among the VA and DoD would eliminate duplication of effort and could produce a more holistic solution for PTSD care for all service members and veterans, but high-level government officials would have to enact these measures, which is on a higher scale than Marine Corps leaders could influence. The best way to mitigate the ugly face of PTSD is to handle it straightaway with force and intensity before it is unbearable and cancerous to the afflicted. It is feasible that higher Marine Corps leaders could implement a screening process based on IQ prior to initial training, that would place individuals in particular Military Occupational Specialties (MOS) per their predisposition to PTSD and the probability of that MOS's exposure to traumatic events. This screening process, coupled with the revolutionary idea of HRV testing (pre-deployment and post-deployment), could guide leaders to best help their troops. The outcome would be significant: faster recovery, better retention rates among troops, more loyalty, and less money spent overall toward care. Prevention is truly the best offense for any PTSD outcome, but no prevention effort will totally eradicate PTSD. Identification is imperative to prevent those with acute PTSD from progressing to chronic PTSD.

### **Identification**

One area sorely lacking in the fight against PTSD is identification. By changing the timeframe of assessments given, especially post-deployment, and eradicating the stigma of PTSD as a career-killer, leaders may be able to identify symptoms early and prevent small problems from becoming bigger ones. Many studies have shown that latency of PTSD is a real

and present danger. The last post-deployment assessment at six months does not cover the initial period to scan for symptoms adequately. The DSM-5 has even updated its definition of PTSD to show a better understanding of the identification of PTSD. All commanders are responsible for the psychological health of their subordinates from the top of the chain of command to the bottom, but higher level leaders need to drive the fight to represent all subordinates' well-being. The COSC has an excellent and visually helpful continuum model designed to identify where Marines fall in their wellness journey without difficulty. The only problem with that is the stigma still associated with PTSD. Although many strides and gains have been achieved, the work is not nearly complete. A vast unwillingness to speak up or to seek treatment still permeates to this day. Phrases such as "career-killer" and "pulling the rip-cord" are often heard in conjunction with PTSD. Unless and until a high-ranking commander stands up and claims the illness, the help they have sought, and their ability to overcome and continue in their military career successfully, the death-grip of silence will persist, and Marines will be unwilling to recognize and identify PTSD in themselves.

Even anonymous surveys show that when information from post-deployment health assessments can be linked back to an individual, they are profoundly prone to lie.<sup>34</sup> The problem is glaring: in an illness where early detection and intervention can reduce the overall effects substantially, the prevailing tendency is to remain silent and act like nothing is wrong, which inevitably delays identification. There are several avenues one can take to help identify PTSD. Marine Corps leaders have done well to get the word out about DSTRESS; however, in a world mainly focused on smartphone applications and texting rather than making phone calls, they should more widely promote their other options that would appeal more to today's "digital generation" of Marines. Lastly, the RAND Corporation feels, based on their study, an overhaul

of the OSCAR program would greatly help its efficacy, although there some extensive misgivings from this author.<sup>35</sup>

The third core leader function of COSC is identify. MCRP 6-11C states: “Leaders must identify not only the stress reactions, injuries, and illnesses experienced by their Marines and Sailors, but also the day-to-day stressors they encounter so they can recognize occasions of high risk for stress problems.”<sup>36</sup> If leaders can identify symptoms early, they may be able to prevent small problems from becoming bigger ones. The DSM-5 characterizes PTSD by “exposure to a traumatic event and the subsequent development of four general symptom domains: reexperiencing the event or intrusion symptoms; avoidance of people, places, or things that serve as a reminder of the trauma; adverse changes in mood and thoughts associated with the event; and chronic hyperarousal symptoms.”<sup>37</sup> It is important to note that the previous version of the DSM required individuals to experience or witness the event directly and to experience a sense of helplessness. However, recent evidence showed that military personnel did not report the typical responses of fear, helplessness, or horror that are common in persons who have experienced traumatic events due to their training and expected result in their occupational role.<sup>38</sup> Armed with this data, the DSM-5 removed the helplessness requirement and expanded the definition to contain the types of recurring threats experienced by persons in these professions.

The COSC program points out that the commander is ultimately responsible for identifying stress zones across the continuum in their subordinates, but they cannot perform the task alone. All unit leaders from the team leader, platoon sergeant, and sergeant major up to the commanding officer must help identify stress zones in individual Marines and must use all available information. Family members, peers, medical personnel, and chaplains are all excellent sources of information for the commander to assess the psychological well-being in their

subordinates. Leaders not only need to recognize stress in their Marines but also need to be able to recognize stress in themselves and to have the fortitude to get help to maintain their own psychological health.

The zones of the stress continuum model serve to help an individual identify when a Marine requires attention to return to full function. The stress continuum model contains four possible color-coded categories: green (“ready”), yellow (“reacting”), orange (“injured”), and red (“ill”).<sup>39</sup> The stress continuum model emphasizes the concept of “stress injuries”—as opposed to earlier conceptualizations of combat stress—which is intended to link the mild stress reactions at one end of the spectrum more closely to the clinical mental disorders at the other end.<sup>40</sup> The placement of varying stresses along the continuum highlights the importance of identifying the issues early in their development in order to prevent their escalation. This will hopefully keep individuals who are just “reacting” from advancing to the “injured” or “ill” categories. Even if a stress injury progresses to the “injured” stage, the majority of these stressors dissipate from days to months, but if the injury fails to heal or gets worse over time, the individual is likely to enter the Red “Ill” Zone. The Red Zone has a high likelihood of substance abuse or dependence, and an increased risk of misconduct and aggression.<sup>41</sup> The primary indicator of a stress illness is the worsening of the injury over time even after the stressor has been removed. All Marines must be actively on the lookout for outward symptoms that could indicate psychological distress in others, but many symptoms are internal to the individual and may not show outward signs until they have progressed to a chronic level. Methods the DoD uses to screen for PTSD hinge on the fact that each Marine is honest with their responses.

There are many PTSD screening tools available, but the VA/DoD guideline states there is insufficient evidence to recommend one tool over the other.<sup>42</sup> The Primary Care-PTSD (PC-

PTSD) screen is a four-question survey that clinicians incorporated into the PDHA and PDHRA. The COSC program utilizes OSCAR team members to identify possible psychological distress in each unit, but it also attempts to reduce the stigma of PTSD. When respected Marine OSCAR members gather their subordinates in small groups to discuss psychological issues with their Marines, it seems to make individuals more comfortable to talk openly about them. Although the COSC attempts to reduce the stigma of PTSD, as long as Marines believe that being labeled with a given condition could affect their future in a negative manner, there will be an underreporting bias on PTSD screening questionnaires. Researchers conducted a study on a brigade of US Army soldiers in 2011 in which they first completed the PDHA, then a subsample was asked to complete an anonymous survey that contained the same mental health questions that were on the PDHA. A comparison of the PDHA and the anonymous survey revealed that the number of positive responses to the overall mental health questions and the PTSD-specific questions more than doubled and in some instances quadrupled. The PDHA showed 3.3% screened positive for PTSD although 7.7% screened positive on the anonymous survey. Of the individuals that screened positive for PTSD or depression on the anonymous survey, 20.3% reported that they were not comfortable reporting their answers honestly on the PDHA. One-third of the positive screen group said they were less likely to seek treatment because they were concerned it would harm their careers.<sup>43</sup> These findings indicate a high level of underreporting bias exists and may have harmful repercussions on the health and readiness of the armed forces as a whole. Knowing this information, leaders need to continue eradicating the stigma associated with PTSD and allow for honest answers on surveys with no immediate negative repercussions. These methods will hopefully identify when a Marine needs psychological assistance when they are low on the stress continuum model and will preclude them from advancing into an intensified category.

Several issues currently exist regarding the DoD screening process. Due to the changes in diagnostic criteria for PTSD in DSM-V, the PC-PTSD screen—on which the PDHA and PDHRA are based—need to be updated to reflect the proper diagnostic criteria. Additionally, clinicians conduct the PDHA within thirty days of returning from deployment, and they perform the PDHRA within three to six months after return. Considering that some PTSD symptoms do not present until six months or more, the PDHRA does not cover this period. To be fully effective, there need to be more follow-up questionnaires conducted. These additional inquiries would be difficult for individual leaders to implement, so they must be extremely vigilant identifying the stress states of Marines in the period of six months and longer after a PTE. In the meantime, there are other anonymous screenings and education avenues available to provide users self-assessment results that could encourage self-referrals for care.<sup>44</sup> Some resources are available online, such as [afterdeployment.org](http://afterdeployment.org), [myhealth.va.gov](http://myhealth.va.gov), and [braveheartveterans.org](http://braveheartveterans.org), and several resources are available through mobile applications like PTSD Coach and Mood Tracker. The Marine Corps launched the DSTRESS line and website in late 2010. The DSTRESS line provides anonymous, 24/7/365 phone, chat, and Skype support and is staffed with veteran Marines, Corpsmen who were attached to the Marine Corps, and licensed behavioral health counselors specially trained in Marine Corps culture.<sup>45</sup> If no one identifies an individual as needing psychological care through the COSC program or deployment health assessments, the DSTRESS line is an avenue that Marines are encouraged to take advantage of and could lead to successful self-referrals. It is critical for leaders to continue using the tools available to identify Marines needing psychological care and to talk about these issues to eliminate the stigma associated with PTSD to encourage Marines to seek help.

In 2015, the RAND Corporation completed an evaluation of the OSCAR program, which was sponsored by the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). The RAND Corporation concluded that Marines in OSCAR-trained units were more likely to seek help for combat-related stress from fellow Marines and unit leaders, but "this evaluation did not find evidence of OSCAR's effectiveness that would support the continuation of OSCAR in its current form."<sup>46</sup> The RAND Corporation made several suggestions including streamlining the program to reduce duplication of effort and to invest resources in more evidence-based programs.<sup>47</sup> The Marine Corps followed their recommendations and have rendered changes in accordance with their advice, but if Marines are more likely to seek help if they are OSCAR trained, then the OSCAR program is mostly effective and seems to be reducing the stigma associated with PTSD. Also, the RAND Corporation's evaluation utilized OSCAR-trained battalions and control battalions that were not OSCAR trained. The OSCAR-trained battalions were infantry battalions, and the control was service support. This logic defies the scientific method—the control group should be the same target population as the OSCAR-trained group—and thereby makes their evaluation largely invalid.

Identification is an integral part of the PTSD process. Between health assessments and personal improvement options, top leaders need to take a definitive and outspoken stand—possibly using personal experience—against the stigma attached. Esprit de corps and cohesiveness would be maintained and honed even further when Marines can witness the highs and lows with a positive outcome on the other side. PTSD is like a death sentence to those who, in some instances, find their counterparts to be the only ones who understand and sympathize with them. Methods like the COSC and surveys help, but even they are limited by the responses given. In all honesty, there will never be a 100% reporting rate; some personalities are simply

too suspicious. However, much more would be willing, and would very much want to speak out if not in fear of losing their livelihoods. Take, for example, the massive following retired General James “Mad Dog” Mattis has. If he were to one day step up and announce that he has PTSD, and show how successful he has continued to be, many subordinates would perk up and take notice. Until then, leaders need to take note from history and the studies that have shown longer post-deployment assessment lengths are necessary. Again, straightforward and easy-to-implement suggestions could proportionally catch latent symptoms of PTSD. The Marine Corps owes it to its Marines to identify the illness as quickly as possible and provide swift follow-up without the fear of retribution.

### **Treatment**

Treatment of PTSD is the phase where many leaders are tempted to disengage and let medical professionals handle everything, but it is important for leaders to stay involved not only for support but also to understand the effects of varying treatment options. Leaders cannot prescribe medications or administer psychosocial therapy, but higher level commanders can ensure alternative treatment options are available and encourage research to field and procure new treatment options. Each case of PTSD is unique, and therefore needs to be treated individually. Many methods of treatment are available through the DoD and VA that are supported by randomized controlled trials (RCTs); the most typical treatments of PTSD include pharmacotherapy and cognitive behavioral therapies (CBTs).

Physicians widely use medications in the treatment of PTSD. There are numerous options available that act on different parts of the brain, and a wide-range gives plenty of choices as no two are alike. Also, there are alternative therapies that can be implemented by Marine Corps leaders, although some are controversial, that may give greater breakthroughs than

medication alone. From marijuana to MDMA studies, significant signs of improvement are promising if clinicians maintain control during use. The main takeaway is that these therapies are not to replace first-line evidence-based treatments, but are to complement and act in a synergistic manner. As long as leaders remain open-minded and willing to do whatever it takes, these controversial therapies can be the next way to combat PTSD effectively. The CBTs that the VA currently employs include exposure therapy cognitive processing therapy (CPT). The National Institute for Health and Clinical Excellence (NICE) recommends prolonged exposure (PE) as a treatment for PTSD. Clinicians have used PE for several decades, but new ways of delivering the therapy have shown great success. Virtual reality exposure therapy (VRET) is a readily available and easily implementable option that leaders can embrace. Not only can VRET be used after exposure to various combat stressors, but they can also be deployed in the prevention of PTSD by exposing troops to the unique environment of combat before even stepping foot in country. Although complementary and alternative therapies are not considered a first-line treatment for PTSD, there is evidence that these therapies have beneficial effects for treating PTSD. The most prominent complementary and alternative therapies include meditation, yoga, and acupuncture, but other promising therapies include animal-assisted therapy and floatation therapy. These CAM therapies can be more cost-effective than traditional treatments and leaders can encourage their use and make these therapies readily available.

Medication is used worldwide to treat a vast number of diseases and ailments including PTSD. Studies show that several drugs are effective in minimizing symptoms of PTSD, but in most cases, medication provides a reduction of symptoms rather than eliminating them entirely and could be more successful when used in combination with CBTs.<sup>48</sup> Medications prescribed for PTSD act on neurotransmitters related to the fear and anxiety portions of the brain such as

serotonin, norepinephrine, and gamma-aminobutyric acid (GABA).<sup>49</sup> Selective serotonin reuptake inhibitors (SSRIs) have the strongest evidence for reducing PTSD symptoms in RCTs, and thus Sertraline (Zoloft) and Paroxetine (Paxil) are the only medications approved by the Food and Drug Administration (FDA) to treat PTSD. The serotonin and norepinephrine reuptake inhibitor (SNRI) venlafaxine (Effexor) is another recommended first-line treatment for PTSD. Several second-line treatment options include tricyclic antidepressants (TCAs), Monoamine Oxidase Inhibitors (MAOIs), mirtazapine, and nefazodone.<sup>50</sup> Doctors frequently use benzodiazepines for anxiety disorders; however, recent clinical trials have shown that these medications may increase the attainment of fear responses and impair recovery from trauma.<sup>51</sup> Because of these potentially adverse side effects and the possibility of addiction, benzodiazepines are not recommended to treat PTSD.

Leaders also need to be aware of favorable alternatives to conventional pharmacotherapy, although they may be considered controversial at this time. There have been increasing studies about the efficacy of cannabinoids in the treatment of PTSD. Cannabinoids activate endogenous cannabinoid receptors that modulate neurotransmitter release which produces a broad range of central nervous system effects.<sup>52</sup> These effects provide a pharmacologic justification to use cannabinoids to treat three core PTSD symptom domains: reexperiencing, avoidance, and hyperarousal.<sup>53</sup> Several studies have shown cannabinoid use improved PTSD symptoms or reduced specific symptoms such as nightmares and insomnia.<sup>54</sup> Other studies seem to contradict these findings and indicate a worsening of symptoms. However, these studies were generally small non-randomized samples which lacked control groups. Additionally, the possible addiction and stigma of marijuana use warrants consideration as well, but all current conventional pharmacotherapies used to treat PTSD carry risks that potentially outweigh the

benefits. In early 2016, the United States Drug Enforcement Administration (DEA) gave formal approval to a controlled clinical trial to study the effectiveness of cannabinoids as a treatment for PTSD in military veterans. This study and others need to be conducted to compare conventional pharmacotherapies to cannabinoids in order to demonstrate the efficacy and safety of each. It is important for Marine Corps leaders to remain open-minded to controversial studies despite the contradictory zero-tolerance policy the Marine Corps has on such substances.

Studies have been conducted for over a decade to determine the effectiveness of a highly controversial substance—3,4-methylenedioxymethamphetamine (MDMA) or ecstasy—to treat PTSD symptoms of individuals who have not responded to conventional treatment. There is an extensive perception that MDMA is extremely dangerous and can cause brain damage or even death, but many of these perceptions are due to users of synthetic amphetamines which are five to ten times more dangerous than MDMA.<sup>55</sup> In the first randomized controlled study sponsored by the Multidisciplinary Association for Psychedelic Studies (MAPS), 83% of patients given MDMA-assisted psychotherapy experienced a significant reduction of PTSD symptoms, compared to only 25% of patients given standard psychotherapy.<sup>56</sup> The MAPS phase two clinical trial is complete, although the results have not yet been made public; they are currently planning the phase three clinical program. The MAPS study explains that MDMA binds to the serotonin reuptake transporter, like SSRIs, but MDMA releases monoamines and evokes sustained glutamate release in the hippocampus.<sup>57</sup> MAPS further states: “These combined effects may facilitate fear extinction learning, by triggering neuroplasticity via Brain-Derived Neurotrophic Factor (BDNF) expression, and assist with the recoding of traumatic memories, thus treating the core psychopathology of PTSD.”<sup>58</sup> Again, leaders cannot directly implement these alternative medications, but they can encourage development and remain open-minded to their

implementation as a possible treatment for PTSD. These alternatives could also be effective when used in conjunction with psychosocial therapies.

The predominant psychosocial therapies used are CBTs. The VA currently provides two forms of CBTs with veterans with PTSD: exposure therapy and CPT. The most commonly used exposure therapy is prolonged exposure, which is a recommended first-line treatment by the National Institute for Health and Clinical Excellence. Emotional-processing theory postulates that those suffering from PTSD, have specific pathologic fears of places, situations, or objects—related to their specific traumatic event—and they are avoided because they are perceived as dangerous despite being safe.<sup>59</sup> This avoidance prevents emotional processing. The goal of PE is to provide corrective information to their memory structure that is associated with the traumatic event in order to promote emotional processing.<sup>60</sup> PE uses in vivo and imaginal exposure to deliver the patient a reduction in associated fear response. In vivo exposure entails gradually and systematically introducing individuals to the things they have been avoiding. Through repeated exposures to those stimuli, the individuals no longer perceive them as harmful and are thus disaffirmed.<sup>61</sup> Imaginal exposure is similar, but rather revisits the memory in imagination and then processes the memory to gain a new perspective on the trauma.<sup>62</sup> Although PE has been in use for several decades, a new way of delivering it has been gaining ground and appears to be very effective.

Virtual reality delivery of prolonged exposure puts individuals in the context in which they were traumatized and gradually helps them confront the stimuli while a clinician controls the situation. The virtual reality environment does not attempt to replicate the exact situation the PTSD patient experienced, but if the environment is similar enough, the individual will use their own memories to fill in the gaps in order to confront their personal trauma.<sup>63</sup> Virtual reality

exposure therapy attempts to overcome a PTSD patient's natural avoidance tendency by immersing the person into a multisensory environment representative of their traumatic experience. Virtual reality exposure therapy (VRET) may have an appeal to younger personnel who grew up in the digital age rather than traditional PE. One VRET—*Bravemind*—is currently found at over sixty sites, which include VA hospitals and military bases. VRET is also being tested as a possibility to prevent PTSD by allowing service members exposure to their combat environment prior to arriving in country so they are more prepared physically and mentally. Near thirty RCTs support the effectiveness of VRET, and research is ongoing. Other forms of psychotherapy utilized to treat PTSD symptoms include cognitive processing therapy and eye movement desensitization and reprocessing, however, the remainder of this section will focus on complementary and alternative therapies. Many of these methods have shown promising improvements in PTSD patients, are typically cost-effective, and Marine Corps leaders themselves could easily make these services available down to the small-unit level.

The DoD and VA are already integrating some complementary and alternative therapies into their programs, but it is important to note that these therapies are not intended to replace first-line evidence-based treatments, but rather to complement them as the name implies. People use yoga and meditation to reduce stress and improve health, and studies have shown that these techniques can be useful improving health-related quality of life in veterans with PTSD. The first randomized controlled trial was completed in 2014, in which Sudarshan Kriya Yoga (SKY) was utilized to reduce PTSD symptoms. Sudarshan Kriya employs various cyclical controlled breathing techniques with different frequencies, intensities, and lengths which result in combined feelings of calmness and relaxation with increased vigilance and attention.<sup>64</sup> The study assessed the effects of SKY on PTSD via self-reporting symptom measures and psychophysiological

measures, which indicated reduced PTSD symptoms and anxiety, as well as a reduced startle response which substantiates the self-reported reduction of hyperarousal symptoms.<sup>65</sup> Granted, self-reported improvement of symptoms are often biased, but as long as the patient feels like the therapy is effective, the method has validity. In addition to yoga and meditation, acupuncture is used worldwide for various mental disorders such as anxiety, dementia, sleep disorders, and substance-related disorders.<sup>66</sup> Although research is severely lacking on the efficacy of acupuncture to treat PTSD, studies have shown that acupuncture helps mitigate specific symptoms of PTSD, such as anxiety, depression, migraines, and insomnia.<sup>67</sup> Marines with PTSD may be more likely to seek these non-exposure treatments because they are not required to share their traumatic experiences with their psychiatrists.

The use of animals in therapy for patients has been documented as early as 1792 by the Quaker Society of Friends York Retreat in England.<sup>68</sup> Some of the numerous benefits humans have with interacting with animals include reducing stress and anxiety, lowering blood pressure, boosting the immune system and promoting exercise. Animal-assisted therapy (AAT) began in the early 1990s; since then its use has increased and has evolved into mainstream psychology.<sup>69</sup> Cynthia Chandler, Ed.D—a counseling professor at the University of North Texas, the Center for Animal-Assisted Therapy’s founder and director, and the author of *Animal Assisted Therapy in Counseling*—explained: “There is actually a psycho-physiological, emotional and physical (component) to interacting with a therapy animal.”<sup>70</sup> One study presented a significant drop in stress hormones and an increase in prosocial and health inducing hormones after only twenty minutes with a therapy dog.<sup>71</sup> While the majority of AAT involves the use of dogs, the use of other animals such as horses, cats, birds, and even dolphins have shown positive results. Marines are taught to take care of their troops and never leave a man behind, and by developing an

emotional bond with an animal, it reinforces that “warrior ethos.”<sup>72</sup> The VA is currently conducting a study to determine if dogs can provide a disability service for veterans with PTSD that would qualify the animal as a Service Dog for PTSD. The VA will provide veterinary care for such service dogs if the research provides positive evidence for supporting PTSD.

The final complementary and alternative therapy that will be discussed is sensory deprivation therapy, also called float tank therapy. Although the first float tank was invented in 1950’s, float tanks as they appear today have only begun to gain popularity in the past decade.<sup>73</sup> Most float tanks are fiberglass pods with a hydraulic lid that has about ten inches of water. The water is kept at ninety-four degrees—the surface temperature of human skin—and contains about one-thousand pounds of Epsom salt, which makes the water over twice as buoyant as the Dead Sea in Israel. Due to the water’s ultra-buoyancy, the patient can float without any effort, which gives the body relief from the natural stress of gravity on the bones, muscles, and joints. The Epsom salt also delivers a large dose of magnesium which relaxes the muscles. These combined effects reduce all external sensations to nearly nothing. Activity in the autonomic nervous system slows down, which results in lower heart rate, lower blood pressure, and slower breathing. Production of adrenaline and cortisol decreases, while serotonin, dopamine, and oxytocin levels increase and puts the body into an intense state of relaxation.<sup>74</sup>

Although there is not much research that proves the benefits of float tank therapy for PTSD, in 2015 Dr. Justin Feinstein established the Float Clinic and Research Center at the Laureate Institute for Brain Research in Tulsa, Oklahoma to substantiate exactly what goes on in the brain while floating. Though Dr. Feinstein’s research is in its early stage, he reports that floating diminishes anxiety in the brain as much as some prescription medications.<sup>75</sup> Although more research is needed to verify the efficacy of float tank therapy to treat PTSD, early findings

are promising. The Marine Corps could easily purchase these float tanks and incorporate them into facilities just as they offer saunas, swimming pools, and traditional exercise equipment in Marine Corps Community Services facilities. Again, complementary and alternative therapies are not intended to replace first-line treatments, but these therapies—whether proven or not—are effective if individuals with PTSD say they are, also, they are readily available and cost-effective.

Treatments for PTSD come in many forms these days, which is wonderful for those suffering. No longer do they have to conform to some cookie-cutter prescribed method that may not work. While Marine Corps leaders have stood by the VA in their efforts to do more for the surge of members returning, they need to more forcibly show their concern by being the first to do the unconventional: make available and use VR technology not only after deployment but before as well. The results stand to be amazing, which helps the Marine Corps in its overall readiness and effectiveness. In addition, wildly radical elements like float tank therapy should be made available forthwith. Not every Marine can afford to frequent float tank facilities out in town—if they are even available. By offering them in or near base gyms (a place Marines frequent), there would be absolutely no reason not to try it. The time is now for the Marine Corps to take a stand and show the world how things are done; not just on the battlefield, but back at home as well.

### **Conclusion**

Years of war in Iraq and Afghanistan have brought PTSD to the forefront of the American public's consciousness. Many veterans seek help for PTSD symptoms on their own, but many do not because they do not believe they have a problem, they do not have confidence that treatment will help, or they are reluctant to seek help due to the stigma that accompanies

being labeled with PTSD. The DoD and VA healthcare systems have programs in place to treat PTSD, but the Marine Corps and its leaders are responsible for its troops long before they are put in the care of the DoD or VA healthcare system. The Marine Corps has made strides in caring for its troops' psychological health; mainly by implementing its OSCAR program. The Marine Corps is attempting to alleviate PTSD by implementing programs that educate leaders and their Marines about PTSD while trying to terminate the stigma associated with it. The Marine Corps could intensify these efforts with the addition of heart rate variability screening to pre-and post-deployment health assessments, which will assist in the prevention of PTSD in individuals when paired with appropriate mindfulness-based training. Furthermore, post-deployment health assessments that occur more than six months after deployment, virtual reality exposure therapy, and float tank therapy would assist in identification and treatment of PTSD, of which Marine Corps leaders could quickly implement. The Marine Corps needs to continue the OSCAR program, but keep improving it with evidence-based findings, always keep an open mind regarding new treatment options and support research associated with them, and seek options such as complementary and alternative therapies to use down to the unit level. Only then will Marine Corps leaders be truly preserving their Marines' psychological health.

## **Appendix A**

### **ACRONYMS**

<b>AAR-</b>	After Action Reviews
<b>AAT-</b>	Animal-assisted therapy
<b>AFQT-</b>	Armed Forces Qualification Test
<b>ANS-</b>	Autonomic Nervous System
<b>APA-</b>	American Psychiatric Association
<b>BDNF-</b>	Brain-Derived Neurotrophic Factor
<b>CAPS-</b>	Clinician-Administered PTSD Scale
<b>CBT-</b>	Cognitive Behavioral Therapies
<b>COSC-</b>	Combat and Operational Stress Control
<b>CPT-</b>	Cognitive Processing Therapy
<b>DCoE-</b>	Defense Centers of Excellence
<b>DEA-</b>	Drug Enforcement Administration
<b>DoD-</b>	Department of Defense
<b>FDA-</b>	Food and Drug Administration
<b>GABA-</b>	Gamma-Aminobutyric Acid
<b>HRV-</b>	Heart Rate Variability
<b>IQ-</b>	Intelligence Quotient
<b>MAOI-</b>	Monoamine Oxidase Inhibitors
<b>MAPS-</b>	Multidisciplinary Association for Psychedelic Studies
<b>MRS-</b>	Marine Resiliency Study

<b>MCRP-</b>	Marine Corps Reference Publication
<b>MDMA-</b>	3,4-Methylenedioxymethamphetamine
<b>MHAT-</b>	Mental Health Advisory Team
<b>MOS-</b>	Military Occupational Specialty
<b>NCS-</b>	National Comorbidity Survey
<b>NICE-</b>	National Institute for Health and Clinical Excellence
<b>NIMH-</b>	National Institute of Mental Health
<b>OSCAR-</b>	Operational Stress Control and Readiness Program
<b>PC-PTSD-</b>	Primary Care-PTSD Screen
<b>PDHA-</b>	Post-Deployment Health Assessment
<b>PDHRA-</b>	Post-Deployment Health Reassessment
<b>PE-</b>	Prolonged Exposure
<b>PPG-</b>	Photoplethysmograph
<b>PTE-</b>	Potentially Traumatic Event
<b>PTSD-</b>	Post-Traumatic Stress Disorder
<b>RCT-</b>	Randomized Controlled Trials
<b>SKY-</b>	Sudarshan Kriya Yoga
<b>SNRI-</b>	Serotonin and Norepinephrine Reuptake Inhibitor
<b>SSRI-</b>	Selective Serotonin Reuptake Inhibitor
<b>TCA-</b>	Tricyclic Antidepressants
<b>VA-</b>	Department of Veterans Affairs
<b>VRET-</b>	Virtual Reality Exposure Therapy

## Endnotes

- 
- <sup>1</sup> Headquarters US Marine Corps, *Combat and Operational Stress Control*, MCRP 6-11C (Washington DC: Headquarters US Marine Corps, December 20, 2010), 1-1.
- <sup>2</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders. 3rd ed. DSM-III* (Washington, DC: American Psychiatric Association, 1980), 236.
- <sup>3</sup> Barry R. Schaller and Todd Brewster, *Veterans on Trial: The Coming Court Battles Over PTSD* (Washington, DC: Potomac Books, 2012), 13.
- <sup>4</sup> Psalms 55:4-5 (NIV).
- <sup>5</sup> Barry R. Schaller and Todd Brewster, *Veterans on Trial: The Coming Court Battles Over PTSD*, 15.
- <sup>6</sup> Richard B. O'Connor, "Collateral Damage: How Can the Army Best Serve a Soldier With Post-Traumatic Stress Disorder?" *The Land Warfare Papers No. 71* (Arlington, VA: The Institute of Land Warfare: Association of the United States Army, 2009), 13.
- <sup>7</sup> *Ibid.*, 11.
- <sup>8</sup> *Ibid.*, 19.
- <sup>9</sup> *Ibid.*
- <sup>10</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Final Assessment* (Washington, DC: The National Academies Press, 2014), 220.
- <sup>11</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders. 5th ed. DSM-V* (Washington, DC: American Psychiatric Association, 2013), 265.
- <sup>12</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment* (Washington, DC: The National Academies Press, 2014), 31.
- <sup>13</sup> Charles R. Figley and William P. Nash, *Combat Stress Injury: Theory, Research, and Management* (New York: Routledge, 2007), 46.
- <sup>14</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, 29.
- <sup>15</sup> *Ibid.*, 30.
- <sup>16</sup> *Ibid.*, 30.
- <sup>17</sup> *Ibid.*, 31.
- <sup>18</sup> *Ibid.*, 31.
- <sup>19</sup> *Ibid.*, 31.
- <sup>20</sup> *Ibid.*, 43.
- <sup>21</sup> *Ibid.*, 44.
- <sup>22</sup> Kenneth C. Bilchick and Ronald D. Berger, "Heart Rate Variability." *Journal Of Cardiovascular Electrophysiology* 17, no. 6 (2006): 691.
- <sup>23</sup> A. Minassian et al., "Association of Predeployment Heart Rate Variability With Risk of Postdeployment Posttraumatic Stress Disorder in Active-Duty Marines." *JAMA Psychiatry*: 2015;72(10):979. <http://jamanetwork.com/journals/jamapsychiatry/fullarticle/2436276>.
- <sup>24</sup> *Ibid.*
- <sup>25</sup> P.S. Nijjar et al., "Modulation of the Autonomic Nervous System Assessed through Heart Rate Variability by a Mindfulness Based Stress Reduction Program." *International Journal of Cardiology* 177 no. 2, (2014): 557. doi:10.1016/j.ijcard.2014.08.116.
- <sup>26</sup> Institute of Medicine et al. *Preventing Psychological Disorders in Service Members and Their Families: An Assessment of Programs* (Washington, D.C.: National Academies Press, 2014), 86.
- <sup>27</sup> *Ibid.*, 87.
- <sup>28</sup> Headquarters US Marine Corps, *Combat and Operational Stress Control*, MCRP 6-11C (Washington DC: Headquarters US Marine Corps, December 20, 2010), 1-8.
- <sup>29</sup> *Ibid.*, 1-17.
- <sup>30</sup> A. Ahronson and J. E. Cameron. "The Nature and Consequences of Group Cohesion in a Military Sample." *Military Psychology* 19, no. 1 (2007): 13.
- <sup>31</sup> Office of the Surgeon Multi-National Force-Iraq et al., *Mental Health Advisory Team (MHAT) V Operation Iraqi Freedom 06-08: Iraq; Operation Enduring Freedom 8: Afghanistan*, 14 February 2008. [http://www.armymedicine.army.mil/reports/mhat/mhat\\_v/Redacted1-MHATV-4-FEB-2008-Overview.pdf](http://www.armymedicine.army.mil/reports/mhat/mhat_v/Redacted1-MHATV-4-FEB-2008-Overview.pdf), 52.
- <sup>32</sup> *Ibid.*, 52.
- <sup>33</sup> Headquarters US Marine Corps, *Combat and Operational Stress Control*, MCRP 6-11C, 3-15.
- <sup>34</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, 201.

- 
- <sup>35</sup> Christine Anne Vaughan et al., *Evaluation of the Operational Stress Control and Readiness (OSCAR) Program*. Santa Monica, RAND Corporation, 2015, 66.
- <sup>36</sup> *Ibid.*, 4-2
- <sup>37</sup> American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders. 5th ed. DSM-V*, 274-276.
- <sup>38</sup> Amy B. Adler and Charles W. Hoge, "A2 Diagnostic Criterion for Combat-Related Posttraumatic Stress Disorder," *Journal of Traumatic Stress* 21, no. 3 (2008): 302.
- <sup>39</sup> Headquarters US Marine Corps, *Combat and Operational Stress Control*, MCRP 6-11C, 4-6.
- <sup>40</sup> Christine Anne Vaughan et al., *Evaluation of the Operational Stress Control and Readiness (OSCAR) Program*. Santa Monica, RAND Corporation, 2015, 73.
- <sup>41</sup> *Ibid.*, 4-21
- <sup>42</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, 197.
- <sup>43</sup> *Ibid.*, 201.
- <sup>44</sup> *Ibid.*, 215.
- <sup>45</sup> US Marine Corps, "DSTRESS Line," *MCCS Forward*, last modified 2016, <http://www.usmc-mccs.org/services/support/dstress-line/>.
- <sup>46</sup> Christine Anne Vaughan et al., *Evaluation of the Operational Stress Control and Readiness (OSCAR) Program*, 66.
- <sup>47</sup> *Ibid.*
- <sup>48</sup> Matt Jeffreys, "Clinician's Guide to Medications for PTSD," *PTSD: National Center for PTSD*, April 25, 2016, <http://www.ptsd.va.gov/professional/treatment/overview/clinicians-guide-to-medications-for-ptsd.asp>.
- <sup>49</sup> *Ibid.*
- <sup>50</sup> The Management of Post-Traumatic Stress Working Group et al., *VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress*, (VA/DoD, 2010), [http://www.healthquality.va.gov/guidelines/MH/ptsd/cpg\\_PTSD-full-201011612.PDF](http://www.healthquality.va.gov/guidelines/MH/ptsd/cpg_PTSD-full-201011612.PDF), 152.
- <sup>51</sup> *Ibid.*, 153.
- <sup>52</sup> K. Betthausen et al., "Use and Effects of Cannabinoids in Military Veterans with Posttraumatic Stress Disorder," *American Journal of Health-System Pharmacy* 72, 15 (2015): 1279.
- <sup>53</sup> *Ibid.*
- <sup>54</sup> *Ibid.*
- <sup>55</sup> Zoe Cormier, "Is Ecstasy an Answer?" *Maclean's*, Jul 20, 2015, <https://search-proquest-com.lomc.idm.oclc.org/docview/1694941306?accountid=14746>.
- <sup>56</sup> Michael C. Mithoefer, M.T. Wagner, A.T. Mithoefer, L. Jerome, and R. Doblin, "The safety and efficacy of  $\pm$ 3,4-methylenedioxymethamphetamine-assisted psychotherapy in subjects with chronic, treatment-resistant posttraumatic stress disorder: the first randomized controlled pilot study," *Journal of Psychopharmacology* 25, no. 4 (2011). <http://doi.org/10.1177/0269881110378371>.
- <sup>57</sup> Amy Emerson, "Treating PTSD with MDMA-Assisted Psychotherapy: Product Development Status and Proposed Design for Phase 3 Clinical Trials," *MAPS Bulletin* 26, no. 3 (2016). <http://www.maps.org/news/bulletin/articles/410-bulletin-winter-2016/6400-mdma-ptsd-2016>.
- <sup>58</sup> *Ibid.*
- <sup>59</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, 233.
- <sup>60</sup> William T. O'Donohue and Jane E. Fisher, *Cognitive Behavior Therapy: Core Principles for Practice*, Hoboken, NJ: Wiley, 2012, 89.
- <sup>61</sup> Institute of Medicine, *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*, 234.
- <sup>62</sup> *Ibid.*
- <sup>63</sup> USC Institute for Creative Technologies, "Bravemind," *Medical Virtual Reality*, last modified 2017, <http://medvr.ict.usc.edu/projects/bravemind/>.
- <sup>64</sup> Sameer A. Zope and Rakesh A. Zope, "Sudarshan Kriya Yoga: Breathing for Health," *International Journal of Yoga* 6.1 (Jan-Jun 2013). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573542/>.
- <sup>65</sup> Seppälä, Emma M. et al., "Breathing-Based Meditation Decreases Posttraumatic Stress Disorder Symptoms in U.S. Military Veterans: A Randomized Controlled Longitudinal Study," *Journal Of Traumatic Stress* 27, no. 4 (August 2014): 403.

- 
- <sup>66</sup> Y.D. Kim et al., “Acupuncture for Posttraumatic Stress Disorder: A Systematic Review of Randomized Controlled Trials and Prospective Clinical Trials,” *Evidence-Based Complementary and Alternative Medicine*: 2013. <http://dx.doi.org/10.1155/2013/615857>.
- <sup>67</sup> Ibid.
- <sup>68</sup> Beth P. Velde, Joseph Cipriani, and Grace Fisher, “Resident and Therapist Views of Animal-Assisted Therapy: Implications for Occupational Therapy Practice,” *Australian Occupational Therapy Journal* 52, no. 1 (March 1, 2005): 43.
- <sup>69</sup> B. Uyemura, “The Truth About Animal-Assisted Therapy,” *Psych Central*, 2016. <http://psychcentral.com/lib/the-truth-about-animal-assisted-therapy/>.
- <sup>70</sup> Ibid.
- <sup>71</sup> Ibid.
- <sup>72</sup> Institute of Medicine, Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment, 261.
- <sup>73</sup> “Much Needed REST: The world of sensory deprivation tanks,” *Psychology Tomorrow Magazine*, August 3, 2014. <http://psychologytomorrowmagazine.com/much-needed-rest-world-sensory-deprivation-tanks/>.
- <sup>74</sup> Ibid.
- <sup>75</sup> Mandy Oaklander, “Float Hopes: The Strange New Science of Floating,” *Time Magazine*. July, 16, 2015. <http://time.com/floating/>.

## Bibliography

- Adler, Amy B., and Charles W. Hoge. "A2 Diagnostic Criterion for Combat-Related Posttraumatic Stress Disorder." *Journal of Traumatic Stress* 21, no. 3 (2008): 301-308.
- Ahronson, A., and J. E. Cameron. "The Nature and Consequences of Group Cohesion in a Military Sample." *Military Psychology* 19, no. 1 (2007): 9-25.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders. 3rd ed. DSM-III*. Washington, DC: American Psychiatric Association; 1980.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders. 4th ed. DSM-IV*. Washington, DC: American Psychiatric Association; 1994.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders. 5th ed. DSM-V*. Washington, DC: American Psychiatric Association; 2013.
- Bethhauser, K., J. Pilz, and L. E. Vollmer. "Use and Effects of Cannabinoids in Military Veterans with Posttraumatic Stress Disorder." *American Journal of Health-System Pharmacy* 72, no. 15 (2015): 1279-1284.
- Bilchick, Kenneth C., and Ronald D. Berger. 2006. "Heart Rate Variability." *Journal Of Cardiovascular Electrophysiology* 17, no. 6 (2006): 691-694.
- Cormier, Zoe. "Is Ecstasy an Answer?" *Maclean's*, Jul 20, 2015. <https://search-proquest-com.lomc.idm.oclc.org/docview/1694941306?accountid=14746>.
- Emerson, Amy. "Treating PTSD with MDMA-Assisted Psychotherapy: Product Development Status and Proposed Design for Phase 3 Clinical Trials." *MAPS Bulletin* 26, no. 3 (2016). <http://www.maps.org/news/bulletin/articles/410-bulletin-winter-2016/6400-mdma-ptsd-2016>.
- Figley, Charles R., and William P. Nash. *Combat Stress Injury: Theory, Research, and Management*. New York: Routledge, 2007.
- Foa, Edna B., and International Society for Traumatic Stress Studies. *Effective Treatments for PTSD: Practice Guidelines from the International Society for Traumatic Stress Studies*. 2nd ed. New York: Guilford Press, 2009.
- Headquarters US Marine Corps. *Combat and Operational Stress Control*. MCRP 6-11C. Washington, DC: Headquarters US Marine Corps, December 20, 2010.
- Institute of Medicine. *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Initial Assessment*. Washington, DC: The National Academies Press, 2012.

- Institute of Medicine. *Treatment for Posttraumatic Stress Disorder in Military and Veteran Populations: Final Assessment*. Washington, DC: The National Academies Press, 2014.
- Institute of Medicine, Laura Aiuppa Denning, Marc Meisnere, and Kenneth E. Warner. *Preventing Psychological Disorders in Service Members and Their Families: An Assessment of Programs*. Washington, D.C.: National Academies Press, 2014.
- Jeffreys, Matt. "Clinician's Guide to Medications for PTSD." *PTSD: National Center for PTSD*. April 25, 2016. <http://www.ptsd.va.gov/professional/treatment/overview/clinicians-guide-to-medications-for-ptsd.asp>.
- Jones, Franklin D., Linette R. Sparacino, Victoria L. Wilcox, Joseph M. Rothberg, and James W. Stokes. *War Psychiatry. Vol. 4, Textbook of Military Medicine: Part 1: Warfare, Weaponry, and the Casualty*. Washington, DC: the Office of The Surgeon General at TMM Publications, Borden Institute, 1995.
- Kim, Y.D., Heo, I., Shin, B.C., Crawford, C., Kang, H.W., & Lim, J.H. "Acupuncture for Posttraumatic Stress Disorder: A Systematic Review of Randomized Controlled Trials and Prospective Clinical Trials." *Evidence-Based Complementary and Alternative Medicine*: 2013. <http://dx.doi.org/10.1155/2013/615857>.
- McLay, Robert N. *At War with PTSD: Battling Post Traumatic Stress Disorder with Virtual Reality*. Baltimore: Johns Hopkins University Press, 2012.
- Meagher, Ilona. *Moving a Nation to Care: Post-Traumatic Stress Disorder and America's Returning Troops*. Brooklyn, NY: Ig Publishing, 2007.
- Minassian, A., A.X. Maihofer, D.G. Baker, C.M. Nievergelt, M.A. Geyer, V.B. Risbrough, for the Marine Resiliency Study Team. "Association of Predeployment Heart Rate Variability With Risk of Postdeployment Posttraumatic Stress Disorder in Active-Duty Marines." *JAMA Psychiatry*: 2015;72(10):979-986. <http://jamanetwork.com/journals/jamapsychiatry/fullarticle/2436276>.
- Mithoefer, M.C., M.T. Wagner, A.T. Mithoefer, L. Jerome, and R. Doblin. "The safety and efficacy of  $\pm$ 3,4-methylenedioxymethamphetamine-assisted psychotherapy in subjects with chronic, treatment-resistant posttraumatic stress disorder: the first randomized controlled pilot study." *Journal of Psychopharmacology* 25, no. 4 (2011). <http://doi.org/10.1177/0269881110378371>.
- "Much Needed REST: The world of sensory deprivation tanks." *Psychology Tomorrow Magazine*. August 3, 2014. <http://psychologytomorrowmagazine.com/much-needed-rest-world-sensory-deprivation-tanks/>.
- Nijjar P.S., S. Duval, D. Duprez, D.G. Benditt, V.K. Puppala, O. Dickinson, and M.J. Kreitzer 2014. "Modulation of the Autonomic Nervous System Assessed through Heart Rate

- Variability by a Mindfulness Based Stress Reduction Program." *International Journal of Cardiology* 177, no. 2 (2014): 557-559.
- Oaklander, Mandy. "Float Hopes: The Strange New Science of Floating." *Time Magazine*. July, 16, 2015. <http://time.com/floating/>.
- O'Connor, Richard B. "Collateral Damage: How Can the Army Best Serve a Soldier With Post-Traumatic Stress Disorder?" *The Land Warfare Papers No. 71*. Arlington, VA: The Institute of Land Warfare: Association of the United States Army, 2009.
- O'Donohue, William T. and Jane E. Fisher. *Cognitive Behavior Therapy: Core Principles for Practice*. Hoboken, NJ: Wiley, 2012.
- Office of the Surgeon Multi-National Force-Iraq, Office of the Command Surgeon, and Office of the Surgeon General United States Army Medical Command. *Mental Health Advisory Team (MHAT) V Operation Iraqi Freedom 06-08: Iraq; Operation Enduring Freedom 8: Afghanistan*. 14 February 2008. [http://www.armymedicine.army.mil/reports/mhat/mhat\\_v/Redacted1-MHATV-4-FEB-2008-Overview.pdf](http://www.armymedicine.army.mil/reports/mhat/mhat_v/Redacted1-MHATV-4-FEB-2008-Overview.pdf).
- Schaller, Barry R., and Todd Brewster. *Veterans on Trial: The Coming Court Battles Over PTSD*. Washington, DC: Potomac Books, 2012. eBook Collection (EBSCOhost).
- Seppälä, Emma M., J.B. Nitschke, D.L. Tudorascu, A. Hayes, M.R. Goldstein, D.T. Nguyen, D. Perlman, R.J. Davidson. "Breathing-Based Meditation Decreases Posttraumatic Stress Disorder Symptoms in U.S. Military Veterans: A Randomized Controlled Longitudinal Study." *Journal Of Traumatic Stress* 27, no. 4 (August 2014): 397-405.
- Sessa, Ben, and David Nutt. "Making a Medicine out of MDMA." *The British Journal of Psychiatry* 206, no. 1 (January 5, 2015): 4. doi:10.1192/bjp.bp.114.152751.
- Thompson, Mark. 2016. "Post-Traumatic Marijuana." *Time* 188, no. 8: 34. Middle Search Plus, EBSCOhost (accessed December 30, 2016).
- Uyemura, B. "The Truth About Animal-Assisted Therapy." *Psych Central*, 2016. <http://psychcentral.com/lib/the-truth-about-animal-assisted-therapy/>.
- The Management of Post-Traumatic Stress Working Group, Department of Veterans Affairs, and Department of Defense. *VA/DoD Clinical Practice Guideline for Management of Post-Traumatic Stress*. (VA/DoD, 2010). [http://www.healthquality.va.gov/guidelines/MH/ptsd/cpg\\_PTSD-full-201011612.PDF](http://www.healthquality.va.gov/guidelines/MH/ptsd/cpg_PTSD-full-201011612.PDF).
- Vaughan, Christine Anne, Carrie M. Farmer, Joshua Breslau, and Crystal Burnette. *Evaluation of the Operational Stress Control and Readiness (OSCAR) Program*. Santa Monica, RAND Corporation, 2015.

Velde, Beth P., Joseph Cipriani, and Grace Fisher. "Resident and Therapist Views of Animal-Assisted Therapy: Implications for Occupational Therapy Practice." *Australian Occupational Therapy Journal* 52, no. 1 (March 1, 2005): 43–50.

Zope, Sameer A., and Rakesh A Zope. "Sudarshan Kriya Yoga: Breathing for Health." *International Journal of Yoga* 6.1 (Jan-Jun 2013).  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3573542/>.