The American Institute of Stress

COMBAT STRESS

BRINGING YOU ALL THE WAY HOME

Volume 5 Number 3
May 2016

Transcendental Meditation

TM *HEALS* PTSD

The mission of AIS is to improve the health of the community and the world by setting the standard of excellence of stress management in education, research, clinical care and the workplace. Diverse and inclusive, The American Institute of Stress educates medical practitioners, scientists, health care professionals and the public; conducts research; and provides information, training and techniques to prevent human illness related to stress.

AIS provides a diverse and inclusive environment that fosters intellectual discovery, creates and transmits innovative knowledge, improves human health, and provides leadership to the world on stress related topics.

Your source for science-based stress management information

COMBAT STRESS

We value opinions of our readers.

Please feel free to contact us with any comments, suggestions or inquiries.

Email: editor@stress.org

Combat Stress is a quarterly magazine, published in February, May, August and November. Each issue contains news and advertising designed with Service Members, veterans and their families in mind. It appeals to all those interested in the myriad and complex interrelationships between combat stress and health because technical jargon is avoided and it is easy to understand. Combat Stress is archived online at stress.org. Information in this publication is carefully compiled to ensure accuracy.

AIS Combat Stress Board

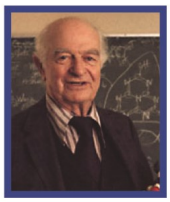
Chaired by Colonel Platoni, the role of this board is to develop initiatives and communications to serve the stress management needs of Service Members and veterans.

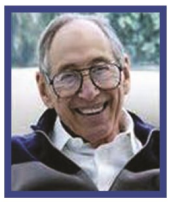
GET INSIDE OUR HEAD

It's Not Our Credentials That Make AIS So Impressive, It's the Fellows That Go with Them.

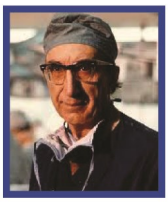
The American Institute of Stress is a non-profit organization established in 1978 at the request of Dr. Hans Selye (the Founder of the Stress Concept) to serve as a clearinghouse for information on all stress related subjects. AIS Founding Fellows include:


Paul Rosch


Linus Pauling


Alvin Toffler


Bob Hope


Michael DeBakey


Herbert Benson


Charles Spielberger

Join our prominent psychologists, physicians, other health care practitioners and health conscious individuals who are interested in exploring the multitudinous and varied effects of stress on our health and quality of life.

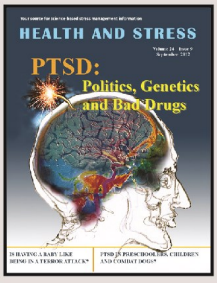
The American Institute of Stress invites YOU to enhance your credentials with FAIS and add your name to our Gallery of Distinguished Fellows.

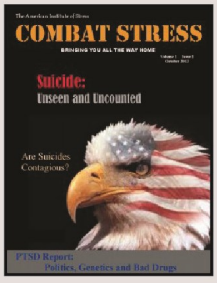
Over the last 35 years, we've expanded our services and broadened our reach, but our dedication to science hasn't changed a bit.

Our four focus areas include:

1. Combat Stress
2. Daily Life Stress
3. Workplace Stress
4. Expanding Human Potential

We produce three e-magazines focused on different stress related topics...

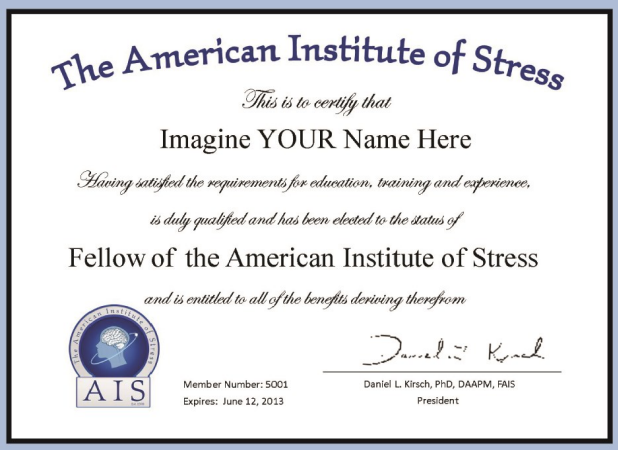




We are always looking for new contributors to our magazines. If you would like to submit an article, email your idea to editor@stress.org

Join us in our mission to **Engage, Educate and Empower** the global community with science based stress management information, tools and techniques so people can live happier, healthier and longer lives!

Visit stress.org to download your FAIS or DAIS application


The American Institute of Stress

This is to certify that

Imagine YOUR Name Here

Having satisfied the requirements for education, training and experience, is duly qualified and has been elected to the status of

Fellow of the American Institute of Stress

and is entitled to all of the benefits deriving therefrom

AIS

Member Number: 5001
Expires: June 12, 2013

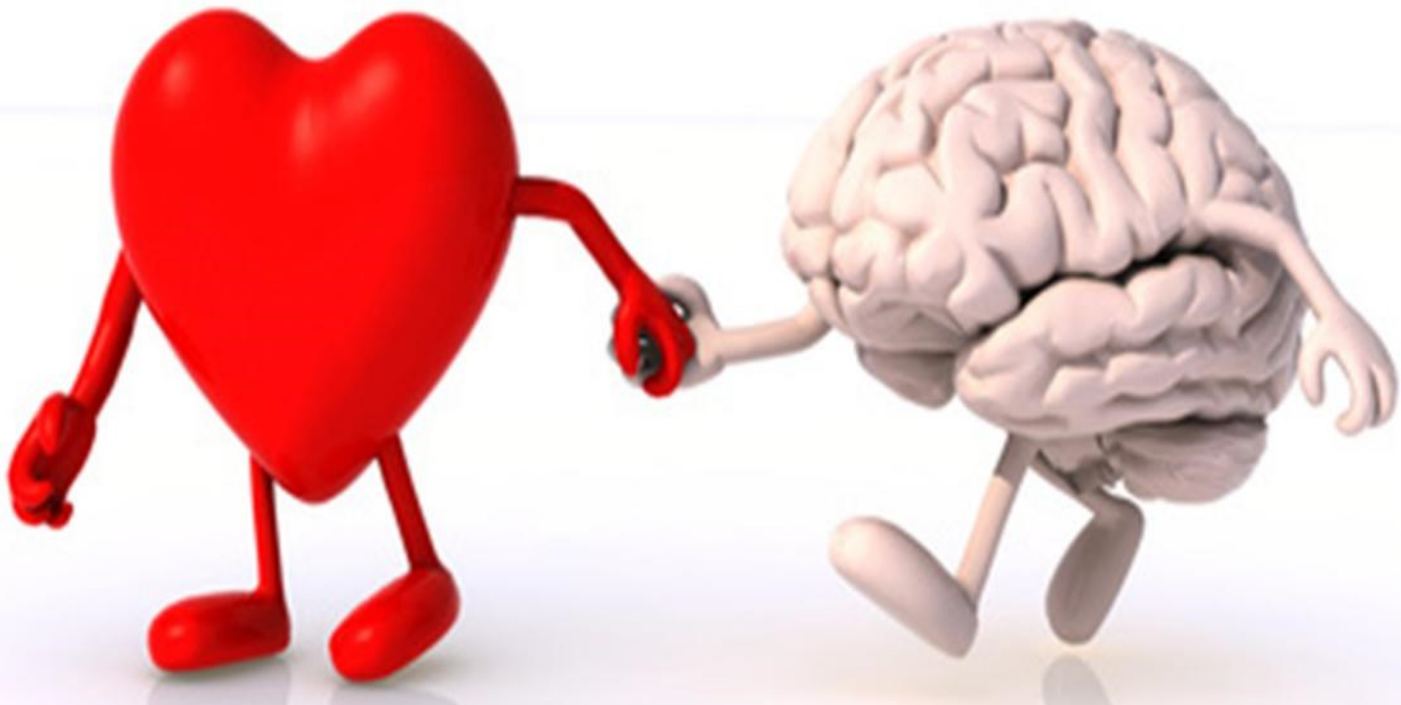
Daniel L. Kirsch, PhD, DAAPM, FAIS
President

American Institute of Stress
9112 Camp Bowie West Blvd. #228
Fort Worth, TX 76116

www.stress.org

USA Main: (682) 239-6823
Fax: (817) 394-0593
Email: info@stress.org

First we got your brain...



Now we need your heart.

The American Institute of Stress helps people learn to manage their stress every single day. We help veterans returning from war find a sense of normalcy again. We help students who are stressed about exams, busy schedules and bullies reach their fullest potential. And we help people like you deal with whatever life throws at you! With your ongoing support, we will continue to be there providing people with relief for today and hope for tomorrow.

Click to Donate:
Easy!

$1 DONATION $5 DONATION $10 DONATION $20 DONATION

Effective Relief from Post Traumatic Stress

Photo Credit: David Lynch Foundation
Norwich cadets in morning meditation. Read about the Norwich Program on page 13

By: Vernon A Barnes PhD,[1] Jennifer J. Williams LCSW,[2] John L. Rigg MD[2]

[1]Georgia Prevention Center, HS1640, Augusta University, Augusta, GA 30912.
E-mail: vbarnes@augusta.edu

[2]Neuroscience-TBI Clinic, Eisenhower Army Medical Center, Ft. Gordon, GA.

Background

Exposure to a life-threatening or horrifying event, such as combat trauma can lead to the development of post-traumatic stress disorder (PTSD).[1] The prevalence of Post Traumatic Stress Disorder (PTSD) in infantry groups deployed to Operations Enduring Freedom and Iraqi Freedom is 13.2%, based on studies conducted by the US Army.[2] More than one third of PTSD cases fail to recover even after many years, demonstrating PTSD to be a chronic disorder,[3] representing a significant and costly illness to veterans, their families, and society as a whole.

The most effective course of treatment for PTSD has been highly debated. Optimal PTSD treatment is currently a central focus in the military community. Drugs and psychotherapeutic interventions are typically used for treating combat-related PTSD.[4] Drugs used for PTSD (e.g., anticonvulsants, antidepressants, and anti-psychotics) are not without adverse side effects. While these interventions are associated with significant reductions in PTSD symptoms, they do not extinguish them completely.[5] Psychotropic medications, especially the selective serotonin reuptake inhibitors (SSRIs), are also used for PTSD and anxiety, but the response rate is low, with less than 30% experiencing complete symptom cessation.[6]

There is a strong emphasis in military medicine on providing evidenced based psychotherapy (e.g., Prolonged Exposure Therapy, Cognitive Processing Therapy, and Eye Movement Desensitization and Reprocessing) as first line treatments. However, psychotherapies used in PTSD treatment require considerable clinic time and effort.[7, 8] Not all patients respond optimally or benefit equally from these approaches, and treatment success may be limited by complicated co-morbidities (e.g., traumatic brain injury, substance abuse, sleep and mood disorders).

PTSD represents a significant and costly illness to veterans, their families, and society as a whole. There is a strong need for multidisciplinary collaborative care models of treatment in primary care to better address the full spectrum of post-war physical and neurocognitive health concerns.[9]

Because many Service Members do not seek help, options for effective treatments that are easily accessible and perceived as non-stigmatizing are needed. Reasons for not seeking treatment may include the stigma of mental illness and its potential impact on career advancement.[10] Non-traditional approaches are becoming increasingly popular as adjunctive treatment options.

Since PTSD is associated with persistent symptoms of increased arousal[1] and an exaggerated nervous system response to stimuli,[11] Transcendental Meditation® (TM) is an intervention that calms these responses. This is accomplished through enhanced relaxation and deep levels of rest provided by TM practice.

Rational For Transcendental Meditation Training For PTSD

For these reasons, and in response to demand from the Service Members themselves,[12-14] TM is now being used as a treatment option for Service Members

suffering from PTSD.[15] TM practice has been shown to yield a multitude of health benefits,[16] and has been studied and implemented worldwide.[17] Therefore, because of the unique ability of the TM technique to provide deep rest to relieve deep-rooted stress, the technique has been offered at the Dwight D. Eisenhower Army Medical Center (DDEAMC) Traumatic Brain Injury (TBI) Clinic at Fort Gordon, Georgia.[18]

SGT Houghton in TM training at EAMC Fort Gordon.

Photo by Vernon Barnes

SGT Borden practicing TM at EAMC Fort Gordon.
Photo by Vernon Barnes

SGT Branson in TM training at EAMC Fort Gordon. "It's nice being given tools to help recover from PTSD and TBI's that are not medications that we can take with us and use whenever and where ever we are. It's nice being empowered to participate in your own care and be able to utilize this tool when needed." Photo by Vernon Barnes

Description of the TM® technique[19]

The TM technique allows the mind to settle inward, to experience the source of thought: pure awareness, also known as *transcendental consciousness*.[20]
This consciousness is thought to be the most silent level of consciousness, associated with deep physiological rest.[21] The neurophysiological basis of the beneficial physiological and clinical effects of TM may be due to the large-scale neural communication and integration characterized by alpha wave coherence and synchrony of EEG patterns observed during the practice of TM.[22]

How TM Works

TM is a very simple and natural mental technique. The experience of TM is characterized by repeated cycles of movement of attention from the active thinking level to more abstract, subtler,

levels. The meditator experiences a quiet state at the most subtle thinking level and then there is spontaneous movement of attention back to the more active levels.[19]

During the practice of the TM technique, awareness of internal thoughts and external stimuli gradually diminishes, mental content fades, and a state of "restful alertness" is produced.[19] Typical TM sessions are said to be characterized by the experience of quiescence, deep rest, mental stability, and an absence of mental boundaries.[23] The technique is prescribed to be practiced 15 to 20 minutes twice daily, at a convenient time in the morning and afternoon.[24] TM involves 'passive breathing', i.e., no breath control procedures are employed and no specific breathing pattern is prescribed.[25] TM can be learned privately without the stigma that may be associated with seeing a mental health provider.

Studies conducted with meditation and PTSD

Clinical reports indicate that TM can easily be learned by individuals of any age, level of education, occupation, or cultural background.[26, 27] Findings suggest that the TM program has been successful in a wide range of treatment facilities. Since 1970 more than 600 research studies on TM have been conducted at more than 250 universities and research centers, published in over 100 journals. These studies have made TM one of the most well-researched of all meditation techniques.[26-28] TM has shown promising results in reducing stress, and improving health outcomes and quality

How TM Training is Delivered

The Transcendental Meditation technique is available in the USA through Maharishi Foundation USA, a federally recognized 501(c)(3) non-profit educational organization. There is no other organization that offers the training in the TM technique. General information about the technique and its effects and more specific preparatory information are presented by a certified TM instructor.

Participants are fully informed prior to engagement in TM training about its purpose and given the opportunity to not participate without consequence. Prospective participants are asked to commit to make and take the time to commit to twice daily practice.[31]

The TM technique is then taught by a certified TM teacher in a session carefully personalized for each individual. After personal instruction, there are interactive follow-up sessions over 4 days with a certified TM instructor.[24] There is no other way to learn the TM technique.[32] (See: www.tm.org).

https://youtu.be/TnnPbYMskVM

of life in outpatient Veterans.[29] In addition, TM has been found to be particularly effective for individuals with high anxiety.[30] The following studies conducted with TM have shown impact on PTSD in Veterans.

TM: Vietnam War Veterans

A randomized trial of 18 Vietnam War veterans with PTSD was conducted from 1981-1982. The TM group practiced TM for 3 months whereas the control group received standard treatment with psychotherapy.[13] The study reported a significant positive PTSD benefit for the TM group as compared to psychotherapy. This included beneficial improvement for emotional numbness, anxiety, depression, alcohol consumption, and family problems. Seven out of 10 in the TM group reportedly felt sufficiently improved that they felt no further need for Veteran Center services.

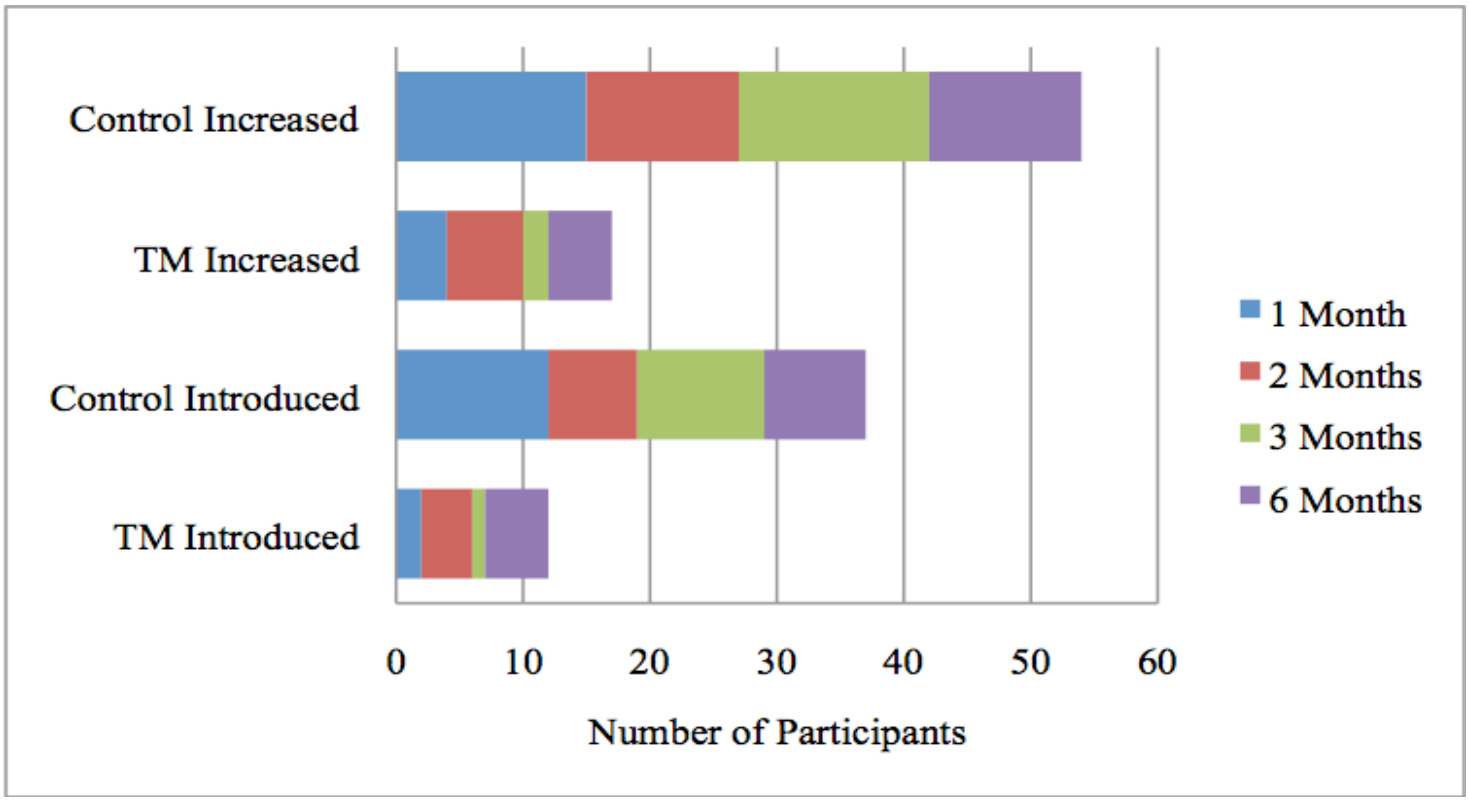
TM: Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) Veterans

This study examined the effects of TM in five OEF/OIF Veterans with PTSD.[14] The veteran's ages ranged from 18-65 years of age, with a history of moderately severe combat-related PTSD. The Veterans were trained in TM and followed for 12 weeks. The study reports that all five subjects improved on the PTSD and quality of life scales.

Meditation Versus Medication

As shown at right, a retrospective chart

TM training: group practice at the Fort Gordon EAMC TBI clinic
Photo by Vernon Barnes



Comparison of the Transcendental Meditation (TM) and control groups on the number of participants with added medications or increased dosages over a six month period.
REPRINT COURTESY MILITARY MEDICINE

review of 74 Service Members seen in our outpatient clinic was conducted at the DDEAMC TBI Clinic at Fort Gordon, Georgia. Medication prescription and usage data as well as psychological measures were collected and analyzed for a period of six months. Data collected at the start of TM practice were compared to results after one, two, three and six months. The sample included military Service Members with documented PTSD or anxiety diagnoses, 37 who practiced TM and 37 who did not. Referrals for the TM program were made from clinic providers, clinical social workers in the Warrior Transition Battalion, psychology residents, and word of mouth from military Service Member participants.

Overall, the results reported that active-duty military Service Members with PTSD or anxiety who regularly practice TM, in addition to receiving traditional therapies, experienced decreases in medication reliance and psychological symptom severity compared to those who received the same therapies without TM. The practice of TM was (1) more likely to be associated with decreasing, ceasing or stabilizing psychotropic prescription dosages, (2) less likely to be associated with additional medications, and (3) more likely to be associated with decreases or stabilizations on self-report measures of psychological symptom severity compared with controls.[18]

Changes in prescription medication by treatment group included increases in medication dosages and the introduction of

additional medications over a 6-month period. The control group increased medication dosages significantly more often than the TM group after 1 month ($p < 0.03$) and 3 months ($p < 0.01$) with a similar pattern of changes at 2 and 6 months (ps = ns). There was also a greater introduction of additional medications among the control group as compared to the TM group after 1 month ($p < 0.005$) and 3 months ($p < 0.005$) with a similar pattern at 2 and 6 months (ps = ns). At 1 month, 83% of the TM group stabilized, decreased, or ceased medications and 11% increased medication dosage. In the control group, 59% showed stabilizations, decreases, or cessations and 40% increased medications ($p < 0.03$). A similar pattern was observed after 3 months, when 75% of the TM group showed decreases or stabilization as compared to 59% of the control group ($p < 0.01$). At 1 month, 5% of the TM group and 32% of the control group added additional medications ($p < 0.005$), and at 3 months, only 3% of the TM group added an additional medication as compared to 27% of the control group ($p < 0.005$).

The introduction of new medications for the control group was observed at almost twice the frequency of the TM group with more TM subjects showing a decrease or stabilization in medication usage. The

Comparison With Other Kinds of Meditation

Meditation techniques are not all the same and are not all expected to give the same results.[33] Meditation techniques have been found to differ with regard to the cognitive processes they require,[34] their neurophysiological effects,[22] and their behavioral outcomes.[33] Meditation categories include (a) focused attention, which requires voluntary control of cognitive processes and is associated with gamma (30-50 Hz) and beta (20-30 Hz) EEG waves; (b) open monitoring or 'mindfulness', which requires dispassionate, non-evaluative awareness of ongoing experience, associated with theta (5-8 Hz) EEG waves; and (c) automatic self-transcending, which is associated with alpha (8-10 Hz) EEG waves.[22]

Because focused attention and mindfulness practices most often involve concentration or control of the mind, (e.g., mindfulness practices keep the mind engaged in a mindful way, such as focusing on the breath) the mind is kept active on the surface thinking level. Focused attention and open monitoring techniques may help develop cognitive and affective skills during meditation that may be available to deal with challenges in daily life. For example, compassion meditation may foster more compassionate behavior. Mindfulness meditation fosters greater mindfulness during the stress experiences that may decrease the stressful impact on the mind and body.

According to Col. (Ret) Brian Rees MC USAR, TM is considered to be the choice practice for soldiers and is unique among meditation techniques.[31] It also has been recommended for improving resilience and enhancement of fitness.[31] Focused attention and mindfulness are helpful outside of meditation, but may not be the optimal approach for addressing a deep-rooted stress disorder such as PTSD. It is TM's unique ability to provide deep rest to relieve deep-rooted stress that has fostered TM success in treating PTSD and TBI.

control group had to use approximately 68% more medications than the TM group to feel the same way at 6 months. The TM group was able to stabilize scores without increasing medication dosages, while the control group required increases in medication dosages for similarly stable or worsened results.[18]

Military Relevance

Overall, the findings suggest that TM practice decreases psychotropic medication dosages, and improves psychological testing scores compared with matched controls. These findings demonstrate the feasibility of providing TM training to active duty Service Members with PTSD in a DOD medical facility, including those with traumatic brain injury. TM has also been found to be valuable in a military academic setting.

TM: Norwich

Norwich University, the Military College of Vermont, is known as the birthplace of ROTC and is the oldest private military college in the United States. TM was first introduced to Norwich in 2010, paving the way for widespread use of TM training as a tool to combat PTSD. At Norwich the first 15 to learn TM were staff members including the president, members from his cabinet, commandant staff, and faculty. The training had a positive impact and provided evidence that it was a good tool for Norwich students. A two-year study was initiated that involved recruit platoons where one platoon learned the technique of meditation and the other platoon did not. The findings showed TM to be an effective tool for the cadets to help them handle the stressful military school environment, where they are really striving for excellence academically, militarily, and physically. Four years later, Norwich has moved to make it a permanent program in which students, staff and faculty can be a part of having this strategy in place to help them with stress reduction.

A Word from Service Members

SSG (ret) Todd Knauber is a combat veteran of Operation Enduring Freedom.

Photo courtesy Todd Knauber

SSG (Ret) Todd Knauber spent nine months in Afghanistan as an open turret gunner. He is a father, husband, brother, and son, like many of the men with whom he served. He said he saw the best and worst that humanity had to offer and learned to endure the scars with which he was left. He did not want to share his problems and issues or the emotionally crippling events that led to them. He believed that the longer a soldier was out of the fight, the better his life was supposed to get. However, the reality was a much starker contrast. He felt his life was not getting better but was getting worse. Fear of a continuing decline engulfed his thoughts. Suicide, for him, was a fine balance between the desire to end the pain and the fear of dying. He said that when someone has been through hell, death ceases to hold any weight and all he could focus on was the pain. To quote him directly, "I was given TM training, the greatest gift I have ever received from a stranger—my life. Just when I felt like slipping over that cliff, away from the pills, away from the pain, there it was. It was not a branch for me to grab hold of, but rather a taproot under my feet."

He stated that TM changed his life. While previous treatments had promised to "potentially" accomplish over the course of years, he was close to achieving in months. TM made him feel more in control of his life, and hopeful about rebuilding his life—getting better rather than lamenting the loss of whom he had been.

In four months of TM practice, SSG Knauber discontinued his sleep medications entirely and cut his anti-depressant dosage by half. He reduced his pain medications from a handful of pills daily to a few tablets two to three times a week. Those around him began to comment that he looked like an entirely different person than how he had looked when he returned from deployment. He was vibrant, he smiled, and he looked much more grounded. He stated that a person cannot practice TM without being positively affected by it.

SGM Hal A. Wages said that TM has made him more sensitive to the needs of the troops under his leadership.

Photo courtesy SGM Hal Wages

SGM Hal A. Wages, Jr. has over 32 years of combined military service, which includes being deployed to Afghanistan. While deployed, he was repeatedly exposed to mortar blasts and other explosions, resulting in repeated concussions. He also fell down a flight of stairs, which not only gave him another concussion but resulted in serious injury to his back and neck requiring multiple surgeries and pain medications. SGM Wages personally knew many soldiers and contractors who lost their lives, some from very traumatic events.

Between those experiences and the constant exposure to mortaring, he developed symptoms of Post Traumatic Stress. He said that he learned how to cover it all up, 'wearing a mask' so that others would not see how much emotional and physical pain he was in. However, he was struggling with nightmares, pain, and high anxiety.

When he was offered the opportunity to learn TM, he was skeptical. Although DDEAMC is the only Army hospital offering TM, he decided to give it a try. That was 18 months ago. Since then, he has practiced the TM technique twice a day. The change in his life has been remarkable. He says his TM experience puts him in a "zone" of calm and allows him to get rid of stress and aggravation. It has reduced the severity of his nightmares and allowed him to sleep better, to start each day calmly and to unwind in the evenings.

SGM Wages has been able to reduce his anti-anxiety medications and totally eliminate narcotic pain medications. His other medications have been greatly reduced. SGM Wages said that TM has made him a better soldier and leader. Prior to learning TM, he believes that his punishments for soldiers under his command were harsher than they are today.

TM: Prevention of Staff and Caregiver Burnout

Addressing or pre-empting staff burnout is a major concern at the DoD. Supervisor burnout may spillover onto the shared work environment, resulting in less favorable perceptions of workplace by the supervised staff. Burnout increases error rate and labor relations issues. Staff who are already experiencing burnout are less equipped to successfully cope with a crisis.[35] Heavy workloads, long-term high stress levels and waning morale result in increased sick leave usage.

DoD medical facilities may also implement the TM program for administrators and staff. Currently at the DDEAMC TBI clinic at Fort Gordon, a program of twice-daily group TM practice has been implemented. We have learned anecdotally that this has benefited the staff and is needed for the providers there.
It has been suggested that outreach providing family environmental support around Service Members would be beneficial, both because learning TM will help these individuals support the Service Member in his or her practice of TM, and because family and service providers are often negatively impacted by dealing with the stresses associated with PTSD.[36]

TM: Potential Cost Savings

Medical health services for PTSD are in the billions of dollars each year.[10] These enormous costs reflect the sum total of pharmaceutical costs, psychotherapies and other health services as conventional care for Service Members suffering from PTSD. The source of this growing problem is rooted in the large number of Service Members returning from recent deployment with PTSD and the high risk of suicide among returning Service Members.[37]

A study has not yet been done to assess the economic impact of TM on PTSD and related medical expenses. Thus, it is unknown how much would be saved if TM were to be introduced for PTSD. Health care utilization and costs are lower with TM practice.[38-40] Since PTSD survivors have lifelong high medical costs with multiple chronic conditions, we could infer at least a cumulative 28% savings in physician costs over five years, as well as reductions in providing therapy and other evidenced-based treatment. [38-40] In addition, the recent study at Fort Gordon found a reduction in medication use associated with TM, which is another important cost savings.[18]

Training Certified TM Instructors

The potential benefit for implementation of the TM program for the DoD is compelling. The TM program has been widely available throughout the United States for nearly 50 years. With increased levels of funding available for PTSD treatment and prevention, policy makers may consider implementing TM as part of a comprehensive prevention initiative in order to help reduce PTSD in our military members and veterans.

COL (ret) Brian Rees MC USAT is a certified TM instructor. He has written an article reviewing outcome data for potential meditation training for solider resilience and two articles on the impact on TM on PTSD in Congolese refugees. Photo courtesy Col (ret) Brian Rees

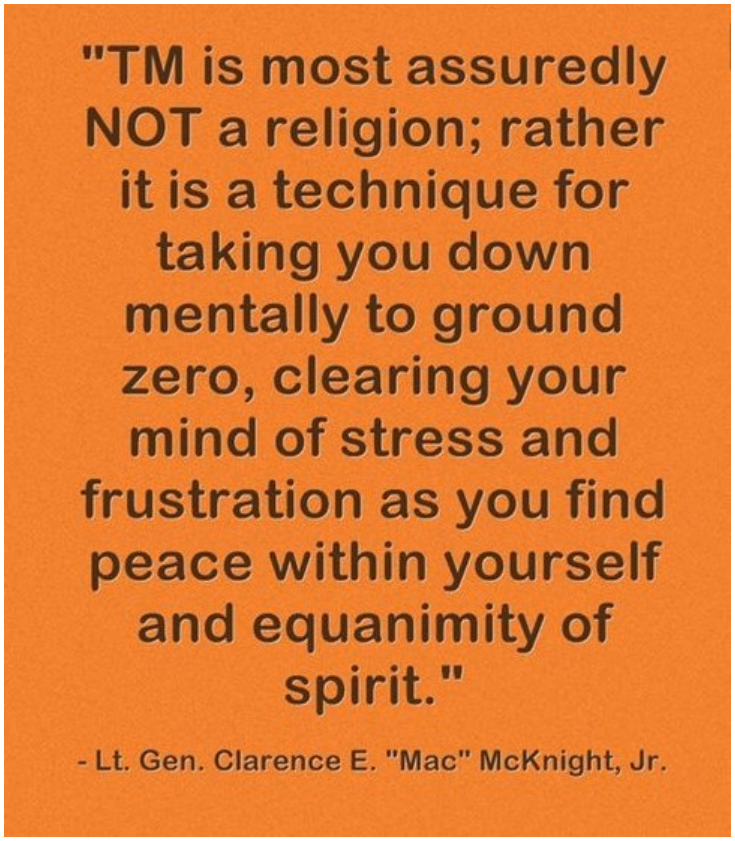
All certified TM teachers have successfully completed an intensive five-month in-residence Teacher Training Course, and they maintain their certification through ongoing professional courses. To date, approximately six million people worldwide have learned the TM technique.[19] 1500 certified TM teachers (approximately 500 currently active and 500 that could be called into active service) are available should the program become a treatment option for DoD.[27]

With regard to the formal training of certified TM instructors, the DoD has the option to have staff trained to conduct the TM program, which will reduce the cost of having outside certified trainers. It is recommended that clinical services delivery and evaluation of the benefits of TM in reducing PTSD would benefit from a set of standardized assessments to be used in the course at intake, as well as prior to and following delivery of the training. Participation in a full-time 5 month in-residence TM teacher training program is currently the standard for certification. Future projects that allow for a valid and reliable assessment of demand for TM programs will be important for decisions regarding resource allocation to programs.

Summary and Recommendations

Results from research studies and individual responses from Service Members demonstrate the feasibility of providing TM training to patients with PTSD in established DoD medical facilities. We have seen that training in and practice of TM holds promise as a viable, feasible intervention to reduce PTSD symptoms,[15] yet surprisingly few active duty Service Members and Veterans know about this option. Increasing interest in the TM program across active duty military subpopulations will require education among clinicians and Service Members, and replication studies across DoD sites to demonstrate the efficacy of this program. It is recommended that the TM program be made available at DoD medical facilities as an adjunctive treatment option. Based on the findings, a prospective randomized clinical trial of TM and its effects on behavioral wellness is warranted. With such a wide range of benefits, TM could potentially be offered to all PTSD patients, regardless of trauma exposure or diagnosis. TM could be used as an adjunctive therapy for those engaged with psychotherapy treatment. TM may be used for preparation or follow-up for more intensive trauma-based psychotherapy or concurrent adjuncts to first-line PTSD treatments. TM may also be framed as a community-based PTSD symptom management or wellness program.

For more information on the TM program for veterans or active service military, please write: info@tmforveterans.org.



REFERENCES

1. American Psychiatric Association. 2004."*Diagnostic and statistical manual of mental disorder DSM-IV-TR"*. 4th ed. Washington DC: American Psychiatric Association.
2. Kok BC, Herrell RK, Thomas JL, et al. (2012). "Posttraumatic stress disorder associated with combat service in Iraq or Afghanistan: reconciling prevalence differences between studies". *J Nerv Ment Dis,* Vol. 200, pp. 444-450.
3. Kessler RC, Sonnega A, Bromet E, et al. (1995). "Posttraumatic stress disorder in the National Comorbidity Survey". *Arch Gen Psychiatry,* Vol. 52, pp. 1048-1060.
4. Friedman MJ. (2006). "Posttraumatic stress disorder among military returnees from Afghanistan and Iraq". *Am J Psychiatry,* Vol. 163, pp. 586-593.
5. Cukor J, Olden M, Lee F, et al. (2010). "Evidence-based treatments for PTSD, new directions, and special challenges". *Annals of the New York Academy of Sciences,* Vol. 1208, pp. 82–89.
6. Berger W, Mendlowicz MV, Marques-Portella C, et al. (2009). "Pharmacologic alternatives to antidepressants in posttraumatic stress disorder: a systematic review". *Prog Neuropsychopharmacol Biol Psychiatry,* Vol. 33, pp. 169-180.
7. Chard KM, Schumm JA, Owens GP, et al. (2010). "A comparison of OEF and OIF veterans and vietnam veterans receiving cognitive processing therapy". *Journal of Traumatic Stress,* Vol. 23, pp. 25-32.
8. Monson CM, Schnurr PP, Resick PA, et al. (2006). "Cognitive processing therapy for veterans with military-related posttraumatic stress disorder". *Journal of Consulting and Clinical Psychology,* Vol. 74, pp. 898-907.
9. Wilk JE, Herrell RK, Wynn GH, et al. (2012). "Mild traumatic brain injury (concussion), posttraumatic stress disorder, and depression in U.S. soldiers involved in combat deployments: association with postdeployment symptoms". *Psychosom Med,* Vol. 74, pp. 249-257.
10. Tanielian T, Jaycox LJ, eds. "*Invisible Wounds of War: Psychological and Cognitive Injuries, Thier Consequences, and Services to Assisit Recovery"*. Santa Monica, CA: Rand Corporation; 2008.
11. Liberzon I, Abelson JL, Flagel SB, et al. (1999). "Neuroendocrine and psychophysiologic responses in PTSD: a symptom provocation study". *Neuropsychopharmacology,* Vol. 21, pp. 40-45.
12. Bormann JE, Thorp S, Wetherell JL, et al. (2008). "A spiritually based group intervention for combat veterans with posttraumatic stress disorder: feasibility study". *J Holist Nurs,* Vol. 26, pp. 109-116.
13. Brooks JS, Scarano T. (1985). "Transcendental Meditation in the treatment of post-Vietnam adjustment". *Journal of Counseling and Development,* Vol. 64, pp. 212-215.
14. Rosenthal JZ, Grosswald S, Ross R, et al. (2011). "Effects of transcendental meditation in veterans of Operation Enduring Freedom and Operation Iraqi Freedom with posttraumatic stress disorder: a pilot study". *Military Medicine,* Vol. 176, pp. 626-630.
15. Heffner KI, Caine ED, Crean H, et al. *Meditation for PTSD Demonstration Project. Final Report to Mental Health Services, Department of Veterans Affairs.* Rochester, MN: University of Rochester 2014.

16. Barnes VA, Orme-Johnson DA. (2012). "Prevention and Treatment of Cardiovascular Disease in Adolescents and Adults through the Transcendental Meditation Program®: A Research Review Update". *Current Hypertension Reviews,* Vol. 8, pp. 227-242.
17. Black DS, Milam J, Sussman S. (2009). "Sitting-Meditation Interventions Among Youth: A Review of Treatment Efficacy". *Pediatrics,* Vol. 124, pp. e532-541.
18. Barnes VA, Monto A, Williams JJ, et al. (2016). "The Impact of Transcendental Meditation® on Psychotropic Medication Use among Active Duty Military Service Members with Anxiety and PTSD". *Military Medicine,* Vol. 181, pp. 56-63.
19. Travis FT. "Transcendental Meditation technique". In: Craighead WE, Nemeroff CB, eds. *The Corsini Encyclopedia of Psychology and Behavioral Science*. New York: John Wiley & Sons; 2001:1705-1706.
20. Alexander CN, Cranson RW, Boyer RW, et al. "Transcendental consciousness: A fourth state of consciousness beyond sleep, dreaming and waking". In: Gackenbach J, ed. *Sleep and dreams: A Sourcebook*. New York: Garland Publishing; 1987:282-315.
21. Travis F, Olson T, Egenes T, et al. (2001). "Physiological patterns during practice of the Transcendental Meditation technique compared with patterns while reading Sanskrit and a modern language". *Int J Neurosci,* Vol. 109, pp. 71-80.
22. Travis F, Shear J. (2010). "Focused attention, open monitoring and automatic self-transcending: Categories to organize meditations from Vedic, Buddhist and Chinese traditions". *Conscious Cogn,* Vol. 19, pp. 1110-1118.
23. Travis F. (2001). "Autonomic and EEG patterns distinguish transcending from other experiences during Transcendental Meditation practice". *Int J Psychophysiol,* Vol. 42, pp. 1-9.
24. Roth R. 1994."*Maharishi Mahesh Yogi's Transcendental Meditation*". Washington, DC: Primus.
25. Travis F, Wallace RK. (1997). "Autonomic patterns during respiratory suspensions: Possible markers of Transcendental Consciousness". *Psychophysiology,* Vol. 34, pp. 39-46.
26. Chalmers R, Clements G, Schenkluhn H, et al., eds. "*Scientific Research on the Transcendental Meditation program: Collected Papers (Vol. 2-4)*". Vlodrop, The Netherlands: MVU Press; 1990.
27. Orme-Johnson DW, Farrow J, eds. "*Scientific Research on the Transcendental Meditation program: Collected Papers (Vol. 1)*". Rheinweiler, West Germany: MERU Press; 1977.
28. Dillbeck M, Barnes VA, Travis F, et al. in press."*Scientific Research on Maharishi's Transcendental Meditation and TM-Sidhi Programme: Collected Papers, Volume 7*". Vlodrop, The Netherlands: Maharishi Vedic University Press.
29. Vujanovic AA, Niles B, Pietrefesa A, et al. (2011). "Mindfulness in the treatment of posttraumatic stress disorder among military veterans". *Professional Psychology: Research and Practice,* Vol. 42, pp. 24-31.
30. Orme-Johnson DW, Barnes VA. (2013). "Effects of the Transcendental Meditation technique on anxiety: A meta-analysis of randomized clinical trials". *Journal of*

Complementary and Alternative Medicine, Vol. 19, pp. 1-12.

31. Rees B. (2011). "Overview of outcome data of potential meditation training for soldier resilience". *Mil Med,* Vol. 176, pp. 1232-1242.

32. Ospina MB, Bond TK, Karkhaneh M, et al. (2007). "Meditation practices for health: state of the research". *Evid Rep Technol Assess (Full Rep),* Vol. 155, pp. 1-263.

33. Orme-Johnson DW, Walton KG. (1998). "All approaches of preventing or reversing effects of stress are not the same". *Am J Health Promot,* Vol. 12, pp. 297-299.

34. Shear J. "Transcendental Meditation". In: Shear J, ed. *The Experience of Meditation: Experts Introduce the Major Traditions*. St. Paul, MN: Paragon House 2006:23-48.

35. Yanchus NJ, Beckstrand J, Osatuke K. (2015). "Examining burnout profiles in the Veterans Administration: All Employee Survey narrative comments". *Burnout Research,* Vol. 2, pp. 97-107.

36. Barnes VA, Gregoski MJ, Tingen M, et al. (2010). "Family Environmental Influences of Meditation Efficacy On Hemodynamic Function Among African American Adolescents". *J Compl Integrative Med,* Vol. 7, pp. Article 25.

37. Lawson NR. (2014). "Posttraumatic stress disorder in combat veterans". *JAAPA,* Vol. 27, pp. 18-22.

38. Herron R. (2011). "Changes in physician costs among high-cost Transcendental Meditation practitioners compared with high-cost nonpractitioners over 5 years". *American Journal of Health Promotion,* Vol. 26, pp. 56-60.

39. Herron RE. (2005). "Can the Transcendental Meditation program reduce medical expenditures of older people? A longitudinal medical cost minimization study in Canada". *Journal of Social Behavior and Personality,* Vol. 4, pp.

40. Herron RE, Hillis SL. (2000). "The impact of the transcendental meditation program on government payments to physicians in Quebec: an update". *Am J Health Promot,* Vol. 14, pp. 284-291.

Not a subscriber?

Have “Combat Stress” delivered to your inbox each quarter!

The American Institute of Stress
6387B Camp Bowie Blvd #334
Fort Worth, TX 76116
www.stress.org

info@stress.org
Main: (682)239-6823

The American Institute of Stress is a qualified 501(c)(3) tax-exempt organization.