

Auricular Acupuncture: A Brief Introduction for Military Providers

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ABSTRACT Injured veterans returning from Operation Iraqi Freedom and Operation Enduring Freedom often require long-term medical management for a variety of complex physical and mental health conditions. These conditions can be challenging to treat with conventional Western medicine practices alone. Recently, complementary and alternative medicine practices have been used within military settings, and have been well received by veterans. Auricular acupuncture is a practice that has provided veterans with a new approach to manage symptoms associated with a wide range of health conditions. This treatment has become an attractive treatment option because of its low cost, portability, minimal side effect profile, and ease of use in clinical and operational settings. Although formally trained Oriental medicine practitioners have historically performed these treatments, military health care providers are now receiving education and training to administer these treatments. This education and training allows military health care providers to expand their knowledge of acupuncture and provide this treatment to veterans across the continuum of care. The purpose of this article is to provide a fundamental description of auricular acupuncture and increase awareness of this treatment and its relevance to military settings.

INTRODUCTION

The current wars in Iraq and Afghanistan have resulted in thousands of military casualties, many of which require long-term medical management for a wide variety of physical and mental health problems. Over the last decade, both military treatment facilities (MTFs) and Veterans Administration (VA) health care facilities caring for veterans have expanded the use of complementary and alternative medicine (CAM) practices in an effort to reduce reliance on opioids and polypharmacy approaches and improve the management of symptoms that can accompany chronic health conditions.¹ According to the National Center for Complementary and Alternative Medicine, CAM therapies are a broad group of diverse medical and health care practices, and products not generally considered part of conventional Western medical treatment.² These practices are frequently used in combination with traditional Western medicine, and this combination of evidence-based CAM and Western medicine is termed “integrative medicine.”

Increasingly, integrative medicine is being used within health care systems in the United States, and integrative medicine programs have been established at some of the leading medical centers across the country. These programs are also appearing within MTFs, and offer new opportunities to incorporate an array of treatments that may improve health care for veterans. Although formally trained Oriental medicine practitioners have historically performed these treatments, military health care providers are now receiving education and training to use them. This education and training allows military health care providers to expand their knowledge, and provide these treatments to veterans across the continuum of care.

Currently, a relatively few military health care providers are trained to administer these treatments, particularly the practice of auricular acupuncture (acupuncture on the ear). Auricular acupuncture has been well received among veterans in many settings,³ and further training in this technique among military health care providers is being advocated by integrative medicine experts within the military. These experts believe that auricular acupuncture can be easily administered to veterans in a variety of settings, and can be used to treat numerous health conditions. The purpose of this article is to provide a fundamental description of auricular acupuncture and increase awareness of this treatment and its relevance to military settings.

ACUPUNCTURE AND TRADITIONAL CHINESE MEDICINE DEFINITIONS

Auricular acupuncture is a form of acupuncture that originated in China during the Chou period (first millennium BCE),⁴ and has historically been one of many treatments used in Traditional Chinese medicine (TCM). TCM encompasses a very different view of health and disease than Western medicine. In TCM, individuals are believed to be interconnected with the universe around them, and the human body is made up of bodily organs with distinct, but interdependent functions.⁵ Health is maintained by creating a balance of forces, whereas treatment of disease is focused on restoring balance among these forces and maintaining bodily homeostasis through self-adaptation and self-adjustment within an individual’s environment.⁶

The theoretical framework of TCM encompasses many key components that are considered simultaneously when diagnosing and treating disease. Although TCM and the practice of acupuncture involve numerous complex concepts and components, a few of the central concepts of TCM will be addressed in this article. These include *yin* and *yang* forces, five elements, *zang fu* organs, holism, *qi*,

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and meridians. The following provides a brief definition of each of these concepts.

Yin and *yang* are two opposing forces that are believed to work together to achieve balance in the body. The closest literal translation of *yin* is “shady side of the hill,” and *yang* is “sunny side of the hill”(p 34).⁷ *Yang* forces have been described as “strong, forceful, active, energetic, aggressive” whereas *yin* forces can be described as “soft, gentle, quiet, restful, still, nurturing” (p 34).⁷ An excess or deficiency of either *yin* or *yang* force is believed to cause illness within the body. TCM treatments attempt to restore balance between these forces.^{6,7}

TCM also encompasses the concept of five elements within the universe that affect an individual’s emotions, personality, health, and response to treatment. These elements include wood, fire, earth, metal, and water. It is believed that each individual is affected by one element more than others.^{7,8} Each of the five elements is related to two types of organs that are identified as either *zang* organs or *fu* organs.⁷ *Zang* organs are described as having more *yin* qualities, whereas the *fu* organs are described as having more *yang* qualities.⁷ Acupuncture channels are described as passages that connect the *zang* and *fu* organs. Both *zang* and *fu* organs

have identification codes, channel locations, associated elements, and identified primary acupoints.⁷

The next concept of interest is *qi* (pronounced “chee”). *Qi* is described as vital life force, a person’s energy that circulates in the body through a system of pathways or “meridians.” When *qi* is in excess or deficient, illness can occur, and TCM practices attempt to restore the balance and harmony in the circulation of *qi*.^{2,7} *Qi* is believed to circulate through meridian channels, which are vertical lines mapped on the body representing invisible lines of energy or channels. Similar to a channel of water, when the flow of *qi* is excessive, there is a flood, and when the flow of *qi* is deficient, there is a stagnation of flow or a drought. Acupuncture needles inserted along meridian channels are believed to regulate the flow of *qi* and therefore restore balance to the body. A total of 12 meridians are documented (six *yang* and six *yin*).^{4,7} The final concept of interest is a holistic viewpoint. TCM uses a holistic view of an individual and carefully considers physical, social, emotional, and spiritual well-being when caring for an individual.⁹ This holistic viewpoint is central to clinical practice in TCM, and attempts to incorporate an individualized plan of care while using components of TCM described above.

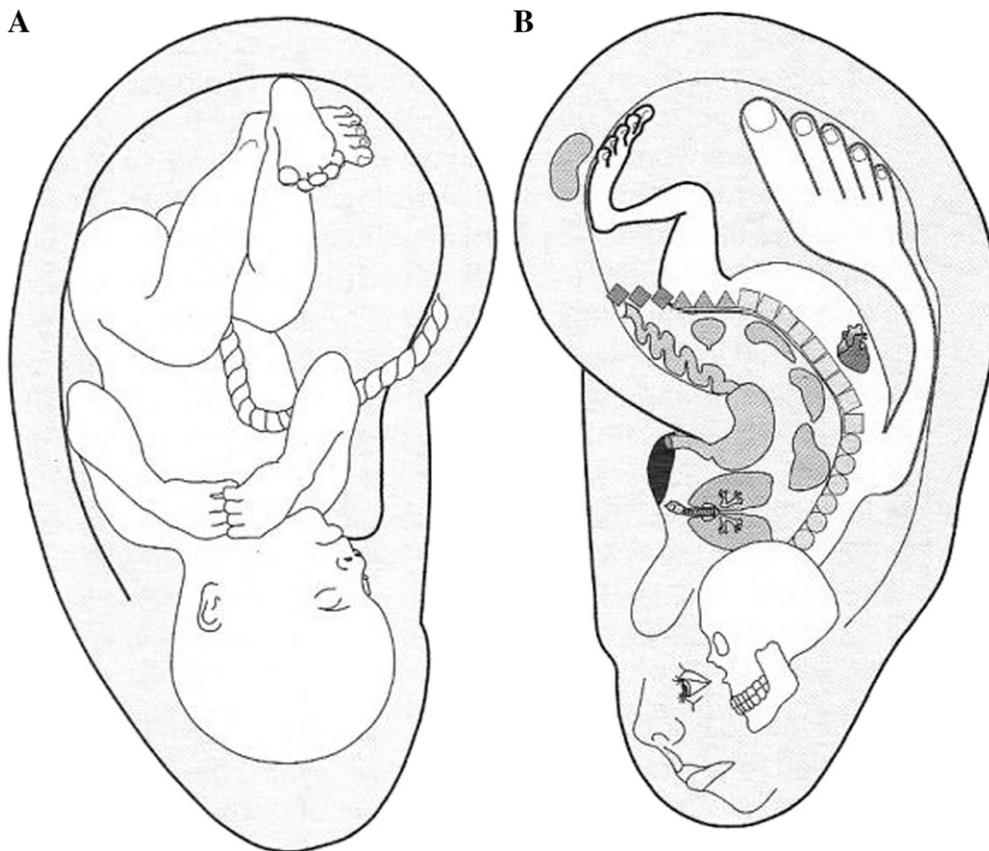


FIGURE 1. (A) Similar somatopic representation of Dr Paul Nogier’s original micro-system or somatopic representation of the external auricle, and (B) corresponding parts of the body (appears as an inverted fetus). Oleson T: Auriculotherapy Manual; Chinese and Western Systems Ear Acupuncture 3rd ed London, Churchill Livingstone, 2003. Used with permission from Elsevier and Dr. Terry Oleson.

HISTORY OF AURICULAR ACUPUNCTURE

The practice of auricular acupuncture is referenced in the "Yellow Emperor's Classics of Internal Medicine," one of the oldest Chinese medical texts.⁴ This text documents *yang* meridians, *zang fu* organs, and the kidney as directly connected to the ear.⁴ However, some contemporary auricular acupuncture experts contend that auricular acupuncture is not dependent on meridians to function.⁷ Rather, auricular acupuncture can be viewed as a self-contained microsystem that can affect the whole body.⁷ This microsystem, which maps all portions of the ear to specific parts of the body and internal organs, was originally described by a French physician, Dr Paul Nogier (Fig. 1).¹⁰ Research on this microsystem was performed by acupuncturists working with the Chinese Nanking Army. The medical unit within the Chinese Nanking Army tested this microsystem on thousands of patients and substantiated Nogier's conceptualization of the somatotopic representation to the auricle.⁷ Although the Chinese Nanking Army verified Nogier's auricular somatotopic representation and agreed on many of his identified auricular acupuncture points, subsequent Chinese auricular acupuncture charts identified auricular acupuncture points corresponding to anatomic locations on the body at similar, but slightly different locations than originally described by Nogier.¹¹ These slight differences are commonly represented on auricular acupuncture charts as (E.) European, (F.) French, or (C.) Chinese to identify the origin of an auricular acupoint.

The origin of these discrepancies is unclear, as the practice of auricular acupuncture expanded to many countries after Nogier's description. However, some authors have suggested that language translations may have contributed to different auricular maps.⁷ Contemporary auricular acupuncture charts now commonly display both European acupoints and Chinese acupoints, and are largely a result of the World Health Organization's international meetings that sought to standardize auricular acupuncture nomenclature and anatomy (see Fig. 2).¹² However, even with standardized auricular acupuncture charts, the practice of auricular acupuncture varies among countries and practitioners. A recent Chinese article highlights this concern, and cites the need to further standardize acupuncture nomenclature, charts, and practice internationally.⁸

DIAGNOSTIC TECHNIQUES AND METHODS OF AURICULAR ACUPUNCTURE

When performing auricular acupuncture several diagnostic techniques are completed before treatment. First, visual inspection of the general appearance of the external auricle is assessed for skin color, dry skin, anatomical variations, and ear lobe creases.⁷ Observations of skin changes and anatomic changes of the ear are believed to be associated with clinical conditions, and should be carefully considered before any treatment.⁷ Next, general sensitivity of the external auricle can be determined with the use of manual pressure, a round tipped metal probe, an electrical point finder, or electroder-

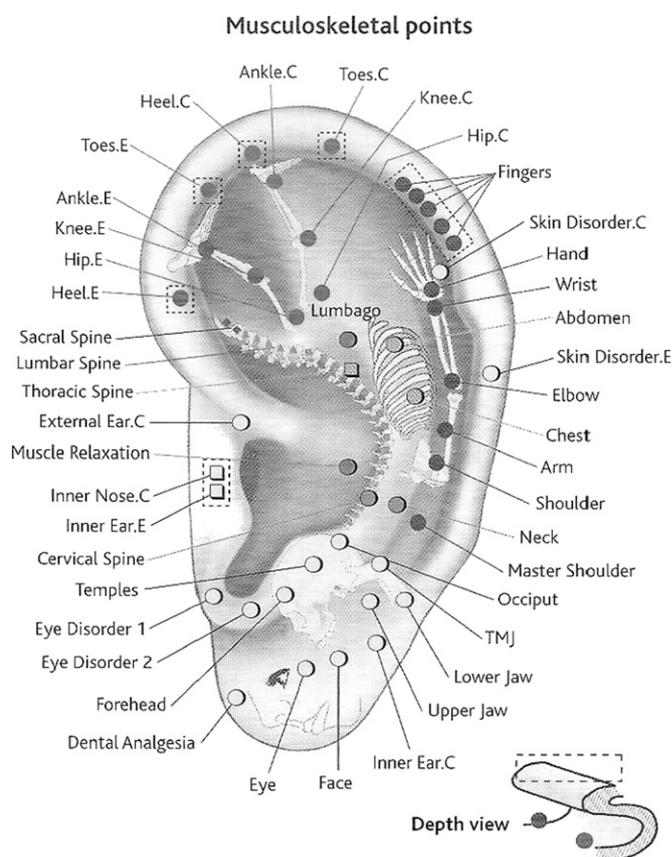


FIGURE 2. An example of an auricular acupuncture chart displaying commonly accepted musculoskeletal points (E. denotes European identified points, and C. denotes Chinese identified points). Oleson T: Auriculotherapy Manual; Chinese and Western Systems Ear Acupuncture 3rd ed London, United Kingdom, Churchill Livingstone, 2003. Used with permission from Elsevier and Dr. Terry Oleson.

mal screening device.^{7,13} Areas of the ear found to have increased sensitivity frequently correlate to areas of the body with clinical pathology.⁷

Other diagnostic methods used in auricular acupuncture include the Oriental method of pulse diagnosis, or a variation on this technique termed "Nogier vascular autonomic signal (N-VAS)."⁷ Oriental pulse diagnosis is a technique in which the practitioner places the three middle fingers on each wrist over the radial artery of the patient. The qualities of the patient's pulses are evaluated for similarities and differences in position, strength, and depth.⁷ A slightly different technique used in auriculotherapy is the N-VAS. The N-VAS is a technique in which the practitioner touches the patient's external ear with one hand and simultaneously palpates the patient's radial pulse with the thumb of the other hand. The external ear of the patient is stimulated either manually or with instruments designed to stimulate the ear. As the ear is stimulated, the amplitude of the patient's pulse is monitored for changes in response to the stimulation. This technique is used to identify sensitive and reactive areas of the ear to correctly diagnose pathology and formulate an appropriate treatment plan. These pulse diagnostic methods along with

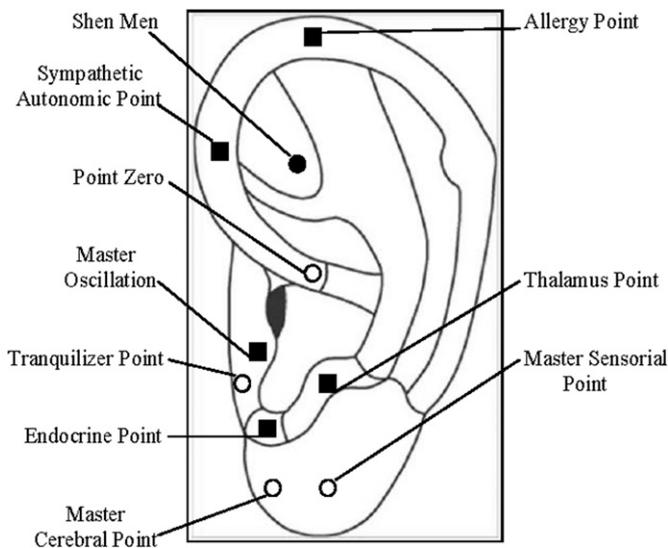


FIGURE 3. Surface view of auricular master points. (O) represents raised portions of the auricle, (●) represents deep regions of the auricle, and (■) represents hidden regions of the auricle. Oleson T: Auriculotherapy Manual; Chinese and Western Systems Ear Acupuncture. 3rd ed London, United Kingdom, Churchill Livingstone, 2003. Used with permission from Elsevier Copyright Clearance Center and Dr. Terry Oleson.

other auricular diagnostic methods require advanced education and involve intricate assessment of an individual's pulse.⁷

Alternatively, Western medicine diagnostic procedures (i.e., radiologic images) or known medical history may be used to guide an auricular acupuncture treatment. Frequently, in contemporary auricular acupuncture practice, a combination of both Oriental and Western medicine diagnostic techniques are used to determine an auricular acupuncture treatment.⁷

Once the appropriate areas of increased auricular sensitivity or anatomic pathological locations have been identified, an auricular treatment may be performed. Auricular acupuncture treatment options include a range of minimally invasive techniques such as the use of specifically designed acupuncture needles (with or without the use of electrical stimulation), metal studs, magnets, pearls, seeds, tacks, or manual pressure/massage that are applied to the external ear.

The practice of auricular acupuncture allows for some variation in treatment methods. For example, some auricular acupuncturists treat a condition based on sensitive auricular areas; however, many times auricular somatopic charts are used as a guide to treat known body pathology. Numerous auricular acupuncture treatment protocols have been developed to guide auricular acupuncturists since Nogier's original description of the somatopic correspondence map. These protocols are for a wide range of health conditions.⁷

In addition to the auricular acupuncture protocols and individual auricular acupuncture points, there are also identified "master" points on the ear. Master points can be used to complement anatomic auricular acupoints and auricular acupuncture protocols, or can be used as a sole treatment. Master points have been described as the most active and useful points on the ear⁷ and are illustrated in Figure 3 and described briefly in Table I.

PROPOSED MECHANISMS OF ACTION FOR ACUPUNCTURE

Recent evidence indicates that the effects of acupuncture are mediated through the central nervous system and have been investigated with both functional magnetic resonance imaging and positive emission tomography and show a broad neuromatrix response involving limbic and limbic-related brain structures (structures that support emotional, behavior, motivation, and long-term memory functions).¹⁴ Previous research has also shown that acupuncture activates A-δ and C afferent nerve fibers that transmit signals to the spinal cord and cause a local release of dynorphin and enkephalins.¹⁵⁻¹⁸ These endogenous peptides resemble opiates and can produce analgesia.¹⁹ Further, afferent pathways are propagated to the midbrain and trigger spinal cord excitatory and inhibitory mediators that release numerous neurotransmitters including serotonin, dopamine, and norepinephrine.²⁰⁻²² Subsequently, these neurotransmitters lead to pre- and postsynaptic inhibition and suppression of the transmission of pain. These findings have largely supported the use of acupuncture as a pain

TABLE I. Description of Auricular Acupuncture Master Points

Master Points	Description
Point Zero	Physiologic center of external auricle and promotes body homeostasis.
Shen Men	Termed the "spirit gate" and promotes tranquilization and allows the mind to connect to one's spirit.
Sympathetic	Provides balance between the sympathetic and parasympathetic nervous systems.
Allergy Point	Promotes the reduction of inflammation associated with allergic reactions, rheumatoid arthritis, and asthma.
Thalamus Point	Encompasses the thalamus and hypothalamus and is believe to affect signals from the thalamus to cerebral cortex as well as hypothalamus functions that regulate autonomic nerves.
Tranquilizer Point	Produces a sedation effect.
Endocrine Point	Promotes endocrine hormones to homeostasis.
Master Oscillation Point	Balances disorders of right and left cerebral hemispheres.
Master Sensorial Point	Controls sensory cerebral cortex area of parietal lobe, temporal lobe, and occipital lobe.
Master Cerebral Point	Represents prefrontal lobe of brain and parts of the cerebral corticies.

Oleson T: Auriculotherapy Manual: Chinese and Western Systems of Ear Acupuncture. 3rd ed. London, Churchill Livingstone, 2003. Used with permission from Elsevier and Dr. Terry Oleson.

intervention. As a result, acupuncture has been widely practiced for this purpose.

Auricular acupuncture may additionally work through mechanisms based on regional nerve innervations of the ear. Although nerve fibers within the ear can have overlapping distributions, most commonly the helix and lobe of the ear are innervated by the cervical plexus, the pinna of the ear is innervated by the trigeminal nerve, and the concha of the ear is innervated by the vagus, facial, and glossopharyngeal nerves. Few studies have investigated how these nerves may contribute to the observed effects of auricular acupuncture, although it is known that stimulation of acupuncture needles placed in the concha stimulates the parasympathetic nervous system.²³ This may contribute to some of the effects reported in auricular acupuncture investigations. Future scientific research on physiologic mechanisms of action for both auricular acupuncture and full body acupuncture is needed to gain a greater understanding of the effects of acupuncture.

SAFETY OF ACUPUNCTURE

Currently, large-scale studies solely examining the safety of auricular acupuncture do not exist, and few auricular acupuncture clinical trials report adverse events.²⁴ However, auricular acupuncture treatments are generally believed to be as safe as body acupuncture. The safety of body acupuncture has been reported in several large prospective investigations.^{25–29} Across these investigations, the reported incidence of mild adverse events from acupuncture ranged from 3.76% to 15%.^{25,27–29} The most commonly reported mild adverse events of acupuncture include pain, bleeding, or hematoma.^{25,27–29} Serious adverse events such as pneumothorax, nerve damage, or infection rarely occur.²⁵

Future research is needed to provide accurate safety data specific to auricular acupuncture practice. Further, practitioners performing auricular acupuncture need to be aware of possible mild and severe adverse events that may be associated with auricular acupuncture and provide appropriate informed consent to individuals who receive acupuncture treatments.

CLINICAL USES OF AURICULAR ACUPUNCTURE

One of the most widely used clinical practice applications of auricular acupuncture is to treat drug addiction.³⁰ This use of auricular acupuncture is largely a result of the development of the National Acupuncture Detoxification Association protocol. Originally developed for opiate addiction,³¹ this protocol first included body acupuncture points in combination with auricular acupuncture points. Later the National Acupuncture Detoxification Association protocol was modified to include only auricular acupuncture points, and is now widely used as a supplemental treatment for alcohol and drug abuse withdrawal symptoms.

However, auricular acupuncture has also been used to successfully treat a number of health conditions, some of which include migraine headaches, depression, anxiety, insomnia,

and weight loss in obese individuals.^{32–36} Auricular acupuncture has also demonstrated beneficial effects to reduce acute and chronic pain intensity.^{37,38} A recent meta-analysis of auricular acupuncture and related techniques (termed auriculotherapy) supports the use of auriculotherapy for the treatment of postoperative, acute, and chronic pain conditions.³⁷ The results of this analysis reveal that auricular acupuncture can reduce analgesic requirements for perioperative pain and reduce pain intensity for acute and chronic pain conditions. Overall, this meta-analysis concluded that the strength of evidence for efficacy of auriculotherapy as an intervention is at a moderate level when compared with control groups.³⁷

Although not a comprehensive review of auricular acupuncture, results from these investigations indicate that auricular acupuncture is a promising nonpharmacological treatment that deserves increased attention and research efforts.

CLINICAL USES OF ACUPUNCTURE AMONG VETERANS

In recent years, auricular acupuncture and body acupuncture have been increasingly used to treat veterans with a wide variety of health conditions. Auricular acupuncture protocols have been developed specifically for use with military populations. The most widely used military specific auricular acupuncture protocol is the battlefield acupuncture protocol (Fig. 4).³⁹ This protocol was developed by Col Richard Niemtow and is used for the treatment of pain among

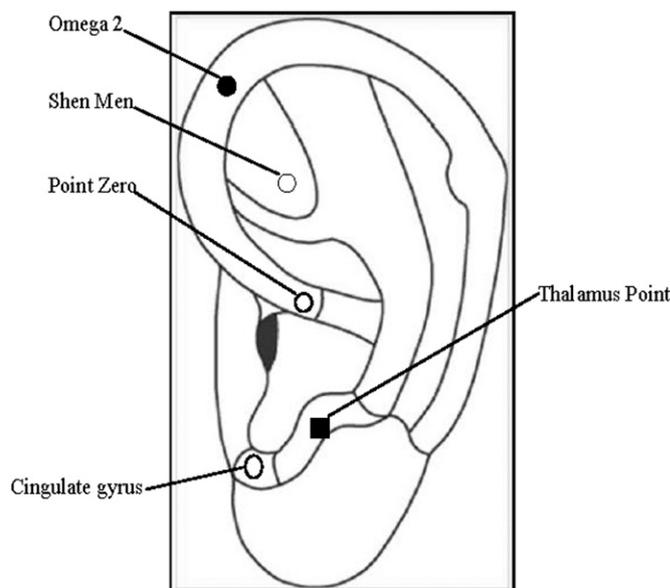


FIGURE 4. Surface view of battlefield acupuncture points. ASP needles are placed in a sequential order (1) Cingulate gyrus, (2) Thalamus, (3) Omega 2, (4) point zero, (5) Shen Men. Shaded shapes represent hidden areas of the auricle for ASP needle placement, however ASP needle may be placed on a visible portion of the ear in close to the original point. Used with permission from Col (ret.) Richard Niemtow as described in Niemtow R: Battlefield acupuncture. *Medical Acupuncture*, 2007; 19: 225–8.

veterans.³⁹ The battlefield acupuncture protocol uses a series of five acupoints (cingulate gyrus, thalamus, omega-2, point zero, and shen men) in which ASP (Aiguille D'acupuncture semi-permanente) studs (short needles that stay in the ear for several days) are placed in a sequential manner.³⁹ The treated individual is asked to ambulate after each stud is placed and evaluate the intensity of their pain. When the pain is relieved, no other ASP studs are placed. This simple protocol has been used for veterans throughout the continuum of care and has demonstrated the ability to reduce pain intensity.³⁹

Several other auricular acupuncture protocols have been developed for use with military populations as well. Specifically, the Auricular Trauma Protocol and Post Traumatic Stress Disorder (PTSD) Auricular Protocol were developed by the Helms Medical Institute.⁴⁰ These protocols use auricular acupoints that are specific to the pathophysiology of traumatic injuries and PTSD. ASP studs or traditional acupuncture needles are placed in specific auricular acupoints that are "active" or "sensitive" as identified by an electrical-point finder. These auricular acupuncture protocols are increasingly being used at military facilities across the country, and ongoing research is examining the efficacy of these treatments.

Additionally, several small-scale investigations and case reports have examined full-body acupuncture among veterans, and have reported beneficial effects for upper extremity complex regional pain syndrome, acute pain syndromes, and musculoskeletal pain (low back, neck, and shoulder pain).^{24,41,42} Numerous descriptive news articles have also documented personal accounts of improvements in chronic pain, insomnia, PTSD symptoms, and reduction of medication use among veterans.^{43,44}

BENEFITS OF ACUPUNCTURE TO VETERANS

Although further scientific investigations are needed to explore the effects of auricular acupuncture and full-body acupuncture, these treatments appear to offer some unique benefits to veterans. Veterans returning from Operation Enduring Freedom (OEF) or Operation Iraqi Freedom (OIF) have high prevalence rates of PTSD, traumatic brain injury, depression, anxiety, sleep disturbance, chronic pain, and physical injuries.⁴⁵⁻⁴⁷ These comorbidities can be complex and challenging to treat with traditional medical practices alone. Integrating the use of alternative nonpharmacologic therapies such as acupuncture with current medical practices expands treatment options available to veterans and uses a multimodal approach to address these health concerns.

Auricular acupuncture may benefit veterans with PTSD because of the enhanced parasympathetic nervous system activity that occurs after acupuncture needles are placed in the conchae of the ear.²³ Veterans with PTSD are known to have sympathetic hyperactivation, and auricular acupuncture may have the ability to promote homeostasis for the imbalance that exists between the sympathetic and parasympathetic nervous systems. However, rigorous studies of acupuncture are needed to evaluate if this occurs.

Numerous other benefits of auricular acupuncture are particularly relevant to veterans. These treatments are minimally invasive, inexpensive, portable; have minimal side effects; and can be easily administered in a variety of clinical settings, including operational settings. In fact, auricular acupuncture treatments in many ways are ideal for operational settings that demand rapid delivery of effective treatments, particularly pain treatments. In addition, the education and training in auricular acupuncture for military physicians, nurses, corpsmen, and medics are relatively brief. After a short period of didactic education, clinical training, passing a written examination, and obtaining appropriate privileging, this treatment can be delivered to veterans in operational settings and across the continuum of care.

Further, acupuncture treatments offer unique benefits in that they are rooted in TCM. TCM emphasizes concepts such as holism, self-regulation, self-adjustment, and balance. These concepts are fundamental to the practice of acupuncture and promote veterans to engage in healthy behaviors.

MILITARY ACUPUNCTURE TRAINING AND EDUCATION

The training and education of auricular acupuncture techniques for military health care providers usually require 4 to 8 hours of didactic teaching and clinical practice, followed by a short examination. The U.S. Air Force initially developed auricular acupuncture training and education for military health care providers and continues this training at the Air Force Acupuncture Center located at Andrews Air Force Base, Maryland. Auricular acupuncture training can also be obtained through MTF educational programs and approved civilian courses (e.g. <http://www.auriculotherapy.com> offered by Dr Terry Oleson a leading worldwide expert on auriculotherapy). Both military privileged providers and nonprivileged providers (nurses, corpsmen, medics, etc.) may be trained to perform auricular acupuncture. However, nonprivileged providers trained in auricular acupuncture techniques are required to submit approval to their local privileging authority to perform this treatment under a defined scope of practice.

It is important to recognize that auricular acupuncture represents only one of many acupuncture techniques. Full-body acupuncture techniques address health problems through meridian channels and have been a valuable treatment for many veterans. These treatments are administered by licensed acupuncturists or medically trained physicians and require more extensive education. Licensed acupuncturists receive 3 to 5 years of formal education from an accredited institution (Accreditation Commission for Acupuncture and Oriental Medicine) and pass a certification examination. Privileged military health care providers (physicians, dentists, podiatrists, chiropractors, clinical pharmacists, physical and occupational therapists, physician's assistants, and advanced practice nurses) can participate in medical acupuncture training program that requires a shortened training program

(300 hours of formal education) on the use of body acupuncture techniques. Currently, medical acupuncture training programs use civilian programs to train military health care providers (i.e., Helms Medical Institute, McMasters University, State University of Downstate Medical Center, Tri-State College of Acupuncture). Once training is complete, military health care providers can perform a variety of acupuncture procedures. Physicians who complete a medical acupuncture training program approved by the American Board of Medical Acupuncture may obtain board certification in medical acupuncture after passing an examination and completing 2 years of medical acupuncture practice. The current process of training military health care providers in acupuncture techniques is rapidly evolving and may change as these techniques expand within military settings.

FUTURE USES OF AURICULAR ACUPUNCTURE IN MILITARY SETTINGS

The use of auricular acupuncture, full-body acupuncture, and other CAM treatments are rapidly emerging within programs offered in military settings. The Warrior Resilience Center at Fort Bliss, Texas; the Holistic Health Program at Camp Pendleton, California; and the National Intrepid Center of Excellence at Walter Reed National Military Center, Bethesda, Maryland, are excellent examples of how treatments such as auricular acupuncture and full-body acupuncture can be integrated into traditional medical models. It is hoped that similar integrative centers will be implemented in other MTFs and smaller military clinics across all military services. Integrating CAM treatments into military medicine has the potential to transform health care delivery to our veterans by using the best Western medicine practices, in addition to holistic practices that address the mind, body, and spirit.

CONCLUSIONS

The value of acupuncture has been recognized by the National Institutes of Health in the most recent consensus statement recommending the expanded use of acupuncture in conventional medicine.⁴⁸ Since this consensus statement was published, acupuncture use among the general public increased significantly although acupuncture use among veterans is largely unknown.⁴⁹ Previous studies on use of CAM modalities, such as acupuncture, have indicated veterans use CAM modalities at similar rates to the general public. However, CAM modalities has been consistently used more frequently by females, Caucasians, and individuals with higher socioeconomic status.⁵⁰ These findings indicate that CAM modalities may not be accessible or affordable to all veterans. By expanding educational opportunities for military health care providers in CAM techniques, such as auricular acupuncture, the availability of these treatments may be more widely available to veterans of all social and economic backgrounds. This availability may promote wellness and an emphasis on activation of the healing response among veterans.

A critical need exists within the military to use effective, practical treatment options to manage symptoms of acute and chronic health conditions affecting veterans entrusted to our care. Auricular acupuncture and CAM treatments may offer an important opportunity to improve the health of veterans. Acupuncture treatments deserve our attention and research efforts to establish a base of evidence for these treatments among veterans.

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REFERENCES

1. Veterans Affairs Office of Research and Development: PTSD and complementary alternative medicine research opportunities: executive summary paper. Available at http://www.research.va.gov/news/research_highlights/ptsd-cam-051711.cfm; accessed February 12, 2013.
2. National Center for Complementary and Alternative Medicine: What is complementary and alternative medicine? Available at <http://nccam.nih.gov/health/whatiscam>; accessed September 9, 2012.
3. Niemtzow RC, Gambel J, Helms J, Pock A, Burns SM, Baxter J: Integrating ear and scalp acupuncture techniques into the care of blast-injured United States military service members with limb loss. *J Altern Complement Med* 2006; 12(7): 596–9.
4. Veith I, trans-ed: *The Yellow Emperor's Classic of Internal Medicine*. Berkeley, University of California Press, 2002.
5. Li Z, Xu C: The fundamental theory of traditional Chinese medicine and the consideration in its research strategy. *Front Med* 2011; 5(2): 208–11.
6. Wang JH: Traditional Chinese medicine and the positive correlation with homeostatic evolution of human being: based on medical perspective. *Chin J Integr Med* 2012; 18(8): 629–34.
7. Oleson T: *Auriculotherapy Manual: Chinese and Western Systems of Ear Acupuncture*, Ed 3. London, Churchill Livingstone, 2003.
8. Wang L, Zhou L, Zhao B: Thoughts and strategies of developing an international standard of nomenclature and location of auricular acupuncture points. *Zhongguo Zhenjiu* 2011; 31(2): 165–8.
9. Hao Y, Liu H, Yue S, Liu X: Introducing traditional Chinese nursing: a review of concepts, theories and practices. *Int Nurs Rev* 2011; 58(3): 319–27.
10. Nogier P: *Le pavillon de l'oreille. Zones et points reflexes*. Sainte-Ruffine, Maisonneuve, 1956.
11. Hwang H, trans-ed.: *Ear acupuncture: a Chinese medical report*. Emmaus, PA, Rodale Press, 1977.
12. World Health Organization: Report of the working group on auricular acupuncture nomenclature. Available at http://whqlibdoc.who.int/publications/1991/9241544171_eng.pdf; accessed February 12, 2013.
13. Pearson S, Colbert AP, McNames J, Baumgartner M, Hammerschlag R: Electrical skin impedance at acupuncture points. *J Altern Complement Med* 2007; 13(4): 409–18.
14. Feng Y, Bai L, Ren Y, et al: Investigation of the large-scale functional brain networks modulated by acupuncture. *Magn Reson Imaging* 2011; 29: 958–65.
15. Kawakita K, Funakoshi M: Suppression of the jaw-opening reflex by conditioning a-delta fiber stimulation and electroacupuncture in the rat. *Exp Neurol* 1982; 78(2): 461–5.
16. Liu J, Qin W, Guo Q, et al: Divergent neural processes specific to the acute and sustained phases of verum and sham acupuncture. *J Magn Reson Imaging* 2011; 33: 33–40.
17. Pomeranz B, Chiu D: Naloxone blockade of acupuncture analgesia: endorphin implicated. *Life Sci* 1976; 19(11): 1757–62.

18. Cheng RS, Pomeranz BH: Electroacupuncture analgesia is mediated by stereospecific opiate receptors and is reversed by antagonists of type I receptors. *Life Sci* 1980; 26(8): 631–8.
19. Bodnar RJ: Endogenous opiates and behavior: 2011. *Peptides* 2012; 3(12): 416–20.
20. Qu F, Zhou J: Electro-acupuncture in relieving labor pain. *Evid Based Complement Alternat Med* 2007; 4(1): 125–30.
21. Yoo YC, Oh JH, Kwon TD, Lee YK, Bai SJ: Analgesic mechanism of electroacupuncture in an arthritic pain model of rats: a neurotransmitter study. *Yonsei Med J* 2011; 52(6): 1016–21.
22. Zhang Y, Zhang RX, Zhang M, Shen XY, Li A, Xin J, et al: Electroacupuncture inhibition of hyperalgesia in an inflammatory pain rat model: involvement of distinct spinal serotonin and norepinephrine receptor subtypes. *Br J Anaesth* 2012; 109(2): 245–52.
23. Haker E, Egekvist H, Bjerring P: Effect of sensory stimulation (acupuncture) on sympathetic and parasympathetic activities in healthy subjects. *J Auton Nerv Syst* 2000; 79(1): 52–9.
24. Goertz CM, Niemtow R, Burns SM, Fritts MJ, Crawford CC, Jonas WB: Auricular acupuncture in the treatment of acute pain syndromes: a pilot study. *MilMed* 2006; 171(10): 1010–4.
25. Witt C, Pach D, Brinkhaus B, et al: Safety of acupuncture: results of a prospective observational study with 229,230 patients and introduction of a medical information and consent form. *Forsch Komplementmed* 2009; 16: 91–7.
26. Melchart D, Weidenhammer W, Streng A, et al: Prospective investigation of adverse effects of acupuncture in 97733 patients. *Arch Intern Med* 2004; 164: 104–5.
27. Ernst E SH, Hagmeister H: Incidence of adverse effects during acupuncture therapy—a multicentre survey. *Complement Ther Med* 2003; 11: 93–7.
28. MacPherson H, Thomas K, Walters S, Fitter M: The York acupuncture safety study: prospective survey of 34,000 treatments by traditional acupuncturists. *BMJ* 2001; 323: 486–7.
29. Zhao L, Zhang F, Li Y, et al: Adverse events associated with acupuncture: three multicentre randomized controlled trials of 1968 cases in China. *Trials* 2011; 12: 87.
30. Han J, Cui C, Wu L: Acupuncture-related techniques for the treatment of opiate addiction: a case of translational medicine. *Front Med* 2011; 5(2): 141–50.
31. Wen H, Cheng SC: Treatment of drug addiction by acupuncture and electrical stimulation. *Asian J Med* 1973; 9: 138–41.
32. Ceccherelli F, Lovato A, Piana E, Gagliardi G, Roveri A: Somatic acupuncture versus ear acupuncture in migraine therapy: a randomized, controlled, blind study. *Acupunct Electrother Res* 2012; 37(4): 277–93.
33. Michalek-Sauberer A, Gusenleitner E, Gleiss A, Tepper G, Deusch E: Auricular acupuncture effectively reduces state anxiety before dental treatment—a randomised controlled trial. *Clin Oral Invest* 2012; 6: 6.
34. Yeung W, Chung K, Leung Y, Zhang S, Law A: Electroacupuncture for primary insomnia: a randomized controlled trial. *Sleep* 2009; 32(8): 1039–47.
35. Yeung W, Ka-Fai Chung K, Tso K, Zhang S, Zhang Z, Ho L: Electroacupuncture for residual insomnia associated with major depressive disorder: a randomized controlled trial. *Sleep* 2011; 34(6): 807–15.
36. Hsieh CH, Su TJ, Fang YW, Chou PH: Effects of auricular acupressure on weight reduction and abdominal obesity in Asian young adults: a randomized controlled trial. *Am J Chin Med* 2011; 39(3): 433–40.
37. Asher GN, Jonas DE, Coeytaux RR, Reilly AC, Loh YL, Motsinger-Reif AA, et al: Auriculotherapy for pain management: a systematic review and meta-analysis of randomized controlled trials. *J Altern Complement Med* 2010; 16(10): 1097–1108.
38. Sator-Katzenschlager SM, Scharbert G, Kozek-Langenecker SA, Szeles JC, Finster G, Schiesser AW, et al: The short- and long-term benefit in chronic low back pain through adjuvant electrical versus manual auricular acupuncture. *Anesth Analg* 2004; 98(5): 1359–64.
39. Niemtow R: Battlefield acupuncture. *Med Acupunct* 2007; 19: 225–8.
40. Helms J, Walkowski S, Elkiss M, Pittman D, Kouchis N, Lawrence B: HMI Auricular trauma protocol: an acupuncture approach for trauma spectrum symptoms. *Med Acupunct* 2011; 23(4): 209–13.
41. Hommer DH: Chinese scalp acupuncture relieves pain and restores function in complex regional pain syndrome. *Mil Med* 2012; 177(10): 1231–4.
42. Spira A: Acupuncture: a useful tool for health care in an operational medicine environment. *Mil Med* 2008; 173(7): 629–34.
43. Roser M: Military tries acupuncture to treat troops for PTSD: new approach making inroads in Western medicine. Available at <http://www.statesman.com/news/news/local/military-tries-acupuncture-to-treat-troops-for-pts/nRtj7/>; accessed April 4, 2013.
44. Mattson J: Holistic treatments help soldiers battle PTSD. Available at http://www.army.mil/article/80772/Holistic_treatments_help_Soldiers_battle_PTSID/; accessed April 4, 2013.
45. Lew HL, Pogoda TK, Hsu PT, Cohen S, Amick MM, Baker E, et al: Impact of the “polytrauma clinical triad” on sleep disturbance in a department of veterans affairs outpatient rehabilitation setting. *Am J Phys Med Rehabil* 2010; 89(6): 437–45.
46. Tanielian T, Jaycox L, Schell T, et al: *Invisible Wounds of War; Psychological and Cognitive Injuries, their Consequences, and Services to Assist Recovery*. Center for Military Health Policy Research, Santa Monica, CA, RAND Corporation, 2008.
47. Seelig A, Jacobson I, Smith B, et al: Sleep patterns before, during, and after deployment to Iraq and Afghanistan. *Sleep* 2010; 33(12): 1615–22.
48. National Institutes of Health: Acupuncture: NIH consensus statement. Available at <http://consensus.nih.gov/1997/1997Acupuncture107html.htm>; accessed November 19, 2012.
49. Su D, Li L: Trends in the use of complementary and alternative medicine in the United States: 2002–2007. *J Health Care Poor Underserved* 2011; 22(1): 296–310.
50. Smith TRM, Smith B, Reed R, Riddle J, Gumbs G, Gray G: Complementary and alternative medicine use among US Navy and Marine Corps personnel. *BMC Complementary Altern Med* 2007; 7(16): 1–9.