An Overview of Integrative Care Options for Patients with Chronic Wounds

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Abstract

Integrative care incorporates aspects of traditional and nontraditional medicine, also often referred to as holistic or complementary and alternative medicine. Providing integrative wound care involves addressing physical, psychosocial, and spiritual components of the whole person. Several care models, including the Seven Balance Point Model, include holistic considerations, as well as promotion of physical health recommendations involving nutrition, sleep, exercise, and emotional, social, and spiritual well-being. The quality of life of patients with chronic wounds may be negatively affected by chronic and procedural pain, sleep disturbance, social, and emotional concerns. Although research into the role of integrative medicine in wound care is limited, experiences from other disciplines suggest wound pain may be addressed using acupuncture, yoga, biofeedback, guided imagery, massage, healing touch and therapeutic touch, aromatherapy, and topical medical-grade honey. In addition, patients who are incontinent or have incontinence-related skin damage or peristomal complications may benefit from biofeedback to better control incontinence. Research to increase understanding about the role of holistic care for patients with wound, stoma, and continence-related problems in general, and its effect on the quality of life of palliative care patients in particular, will help clinicians provide evidence-based and patient-centered care.

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Addressing the needs of a person with a chronic wound involves physical (wound healing, wound-related pain reduction, odor control), psychosocial (stress, anxiety, and depression), and spiritual (the patient’s relationship with a higher power) components. Approaches to care may incorporate complementary and alternative medicine (CAM) practices. Several terms are used interchangeably in the literature to represent the breadth of CAM practices and include holistic, complementary and alternative, nontraditional, and integrative medicine. These terms are similar but not necessarily interchangeable. Holistic medicine encompasses whole person care (eg, body, mind, spirit). Complementary and alternative and nontraditional medicine incorporate various diagnostic and therapeutic approaches to enhance traditional Western medicine. Nontraditional medicine includes, but is not limited to, acupuncture, massage, and healing touch. Some nontraditional practices are based on results of well-designed clinical studies, are reproducible from practitioner to practitioner, and have a place in traditional medicine therapy.

Aspects of alternative medicine — eg, electrodermal testing, iridology, and hair analysis — are not reproducible from practitioner to practitioner and may not be evidence-based. As such, alternative diagnostic testing should not replace a patient’s medical history and physical exam. Some US integrative naturopathic medical schools teach acupuncture. Patients with chronic pain may be prescribed (narcotic) medications by a Western physician; CAM can be used to enhance prescription medication pain control through use of acupuncture depending on the patient’s pain severity and type. Integrative medicine combines traditional and nontraditional practices for an enhanced patient-centered model of healing, and this term will be used throughout the rest of this review.

Mind, body, and spiritual healing require a personalized, integrative team approach to adequately care for these aspects of the human journey. Integrative medicine has a role in palliative care. When healing is not the objective, as in palliative care, the clinician may turn to integrative medicine’s focus on overall patient comfort and peace.

More than 200 integrative medicine interventions/therapies are available in the US, most of which are not covered by third party insurance or Medicare. In the author’s experience, palliative care patients suffering with chronic wounds are among a growing number of consumers interested in learning more about healing benefits of evidence-based integrative medicine services.

The purpose of this review is to describe the principles of, and various approaches to, integrative care that may help patients with chronic wounds.
Integrative Approaches to Wound Care

Post debridement wound pain, wound odor, muscle tension secondary to stress and anxiety, wound infection secondary to fecal incontinence, headache, and energy loss secondary to depression are known to be associated with the presence of chronic wounds. Integrative therapies such as acupuncture, guided imagery, hypnosis, yoga, deep breathing, biofeedback, massage, healing touch, dietary supplements, aromatherapy essential oils, topical honey, prayer, and relaxation techniques can play a role in assessing, addressing, and managing many of these issues.

Popoola describes a holistic caring praxis (practice) model used in the assessment of chronic wound patients. This model contains physiological, emotional, social, cultural, economic, and spiritual components of general health and well-being.

Based on the results of a wound specialist panel that was assembled to create a wound bed paradigm for people with chronic wounds, Laforet et al recommend an integrative medicine paradigm to treat the cause of the wound (ie, naturopathy), provide local wound care (ie, topical therapy), and address patient-centered concerns (ie, acupuncture, aromatherapy, energy work, massage, and inhalational essential oils).

Another integrative health model, the Seven Balance Point Model, which incorporates and expands upon the Popoola approach, focuses on various healing techniques including physical care of the chronic wound as well as interventions promoting physical health, healthy nutrition/dietary supplements, restorative sleep, exercise, and emotional, social, and spiritual health. Developed by this author, this model has not been tested in chronic wound care patients, but in her experience provides a comfort-centered algorithm for sustainable healing.

Acupuncture. Acupuncture is the practice of piercing specific areas of the body along vital energy tracts with small needles with or without electrodes. The principles of acupuncture include a belief that energy tracts or meridians flow throughout the body and may be affected at specific trigger points. Two reviews of the literature conclude acupuncture may be effective for soft tissue pain, neuropathic pain, and musculoskeletal pain. Trigger-point manipulation causes central nervous system modulation and temporarily breaks the pain cycle depending on the cause and nature of the pain. A cluster-randomized, open-label trial has shown that acupuncture also causes peripheral vasodilation in muscle and skin, which, in turn, may improve oxygenation to a wound. Acupuncture risks described in the literature include pneumothorax and skin or internal puncture-related infections.

Anecdotal benefits from acupuncture therapy for pain control in patients with wounds have been reported. Acupuncture can be employed as a component of more comprehensive TCM diagnostics (eg, pulse, tongue inspection, smelling, inquiring) and intervention or as a stand-alone approach. TCM also may include assessing and balancing the five elements of wood, fire, earth, metal, and water and the eight principles of yin/yang, heat/cold, deficiency/excess, and external/internal aspects of healing.

Two different forms of acupuncture are recognized by the National Institutes of Health: one incorporates TCM principles and diagnostics along with needling, and the other involves needling of acupuncture meridians. In 1971, acupuncture became more well recognized in the US after a New York Times reporter traveling with the Nixon administration in Peking, China wrote how integrative Chinese medicine, including acupuncture, was used to reduce his postoperative appendectomy pain. Soon thereafter, licensed allopathic physicians in the US were allowed to perform acupuncture without advanced acupuncture training. Nevada became the first state to license nonphysicians as acupuncturists in 1973. Acupuncture delivered without traditional TCM diagnostics has become the more popular option in the US.

Yoga. Yoga integrates exercise, deep breathing, mental control, and an aspect of spirituality and may be indicated for relaxation in the chronic wound patient experiencing pain. Many forms of yoga are practiced today, including anusara, ashtanga, hatha, kriya, kundalini, sivananda, hot yoga, and laughter yoga, to name a few. The most common form, hatha yoga, involves a discipline of postures and breathing exercises designed to improve overall health and prepare the mind for meditation, which can be helpful for the ambulatory chronic wound patient for emotional relaxation. It is important to vet wound patients with yoga masters before commencing the class to alleviate concerns about yoga positions harming the actual wound.

Posadzki et al conducted a systematic review of randomized controlled trials involving yoga for any type of pain management, not necessarily related to patients with chronic wounds (ie, labor pain, osteoarthritis, carpal tunnel syndrome, migraine, irritable bowel syndrome, low back pain). Yoga interventions included hatha, viniyoga, iyengar yoga, and integrated yoga, and concluded that yoga may alleviate some types of pain better than others. More well-designed studies are needed to assess yoga’s place in therapy for all types of pain described in this review.

One component of yoga — deep breathing (or belly breathing) — for relaxation and the reduction of postoperative pain helps calm and focus the person on the present through a meditative state. The technique involves slow inhalation, filling up the lower lungs over 10 seconds or longer, and slow exhalation over the same amount of time. Deep breathing quiets the mind and is influenced by a person’s hypnotic susceptibility.

Miller conducted a small pilot study among 15 patients undergoing coronary artery bypass surgery to examine pain management involving deep breathing on the second postoperative
day. Outcome measures included changes in blood pressure, pulse rate, respiratory rate, facial tension, crying, pain score via linear pain scale, and the patient's self-report of pain. Miller reported positive improvements in five objective parameters (including blood pressure, pulse rate, respiratory rate, and pain score scale 0-10) after deep breathing. The author does not disclose the number of breaths or time period of the procedure over which most of the objective improvements were realized for each patient or on average.

**Biofeedback.** Biofeedback has been studied in combination with relaxation techniques to assist healing in patients with diabetic foot ulcers. In a prospective, randomized study of 32 patients, Rice found that when combined with standard medical care, biofeedback improved foot ulcer healing rate, defined as the change in wound area over time (days). Results showed a higher healing rate in patients who used biofeedback-assisted relaxation techniques than in persons who did not (87.5% versus 43.8%, P <0.002) over 4 to 12 weeks; 21 patients were reported to be clinically positive healers and 11 patients were reported as nonhealers.

**Guided imagery.** Guided imagery is a type of meditation. A guided imagery practitioner leads two to three sessions where the student is taught to relax and use her/his imagination to visualize a peaceful place and time to reduce stress, elevate mood, slow heart rate, and relieve pain. Training for guided imagery practitioners takes place through the Academy of Guided Imagery. Guided imagery might allow patients to better cope with emotional issues regarding chronic wound care and/or end-of-life decisions. Holden-Lund studied the effects of guided imagery on relaxation and wound healing in 24 surgical patients who underwent cholecystectomy. Patients utilizing guided imagery reported less anxiety, lower cortisol levels on postoperative day 1, and less surgical wound erythema than patients who did not use this approach.

**Massage.** Massage is the systematic manual manipulation by a licensed massage practitioner of muscles, ligaments, tendons, and fascia in the body. Massage may offer positive benefits of relaxation, stress management, increased blood flow through muscles, and increased lymph flow. Patients with chronic wounds seeking massage for relaxation should do so upon the advice and consent of the healthcare professional treating the wound to ensure safety and appropriateness of care, including placement on the table to protect the wound and any surrounding injured tissue. The chronic wound patient must communicate critical information about the location of the wound in question to the therapist so the massage therapist will not cause harm to the patient or wait until the wound is farther along in the healing process. Open communication between the massage therapist and chronic wound patient is essential to a positive outcome for the patient. An individual massage type must be customized for specific patient needs, and safety should be a priority.

Massage may be provided in numerous forms, many of which may be considered too aggressive for palliative care patients with chronic wounds. Deep tissue massage uses techniques that affect the muscles and fascia. Lymphatic massage is a gentler, whole body massage that stimulates lymphatic drainage to carry away excess fluid in connective tissue. Patients experiencing obstructive lymphedema may benefit from the use of intermittent massage of the involved limb with sequential pneumatic compression devices in an attempt to improve lymph flow to nonswollen tissues while not harming any associated wound. Contraindications in wound healing may include, but are not limited to, lymphorrhea, infection, localized immunodeficiency, tissue fibrosis, impaired vascular flow, and swelling (compression bandages are required to prevent more limb swelling).

Swedish massage involves strokes moving toward the heart to stimulate blood circulation through soft tissues. Neuromuscular massage is diagnostic for muscle knots and involves deep tissue therapy in areas beyond the wound. Rolfing, which works by unlocking the myofascia, a web-like connective tissue that encompasses muscle, regulates muscle position and function.

Mars et al. studied patients with diabetes randomized to two groups, both of which received standard medical and surgical care. Additionally, group one received 20 minutes of compressed air massage at 1 bar pressure daily, 5 days per week, to the affected foot. Ulcer healing time was defined as the time from admission to the hospital to the time of wound re-epithelialization. Compressed air massage was shown to significantly reduce healing time for diabetic foot ulcers compared to control (P = 0.001). No side effects to the massage were reported by the study authors.

**Touch.** The calming power of touch, especially for patients with chronic fungating wounds, can be significant when administered by palliative nurses at the patient's end of life. In a case report of a palliative care patient with inflammatory breast cancer, lymphedema in her left arm, and a fungating chest wound, touch was used as a significant tool for patient relaxation and comfort at end of life. Healing Touch, developed by Mentgen in the 1980s, is endorsed for patient care by the American Holistic Nurses' Association (www.ahna.org). Healing Touch represents a variety of energy-based techniques to assess and align the human energy field. The spectrum of certified practice includes no touch to light touch by the practitioner. The intent is for the patient and practitioner to exchange energy with each other. Healing Touch works with the client's natural ability to heal and is claimed to reduce acute and chronic pain, enhance the immune system, reduce anxiety, and assist in healing dermal lacerations. There is a paucity of published research involving wound patients on this topic.

Therapeutic Touch (TT), a subset of techniques used in Healing Touch, was studied in 24 healthy volunteers with punch biopsy wounds in the deltoid muscle. Participants were randomly assigned to TT every day for 5 minutes for a total of 10 days or to the control group (no TT). Wounds were examined for healing at days 5 and 10 by one physician, and photographs of the wounds on day 5 and 10 were examined by three other physicians for an evidence of infection, re-epithelialization, scar formation, scar pigmentation, wound closure, and cosmetic appearance. By the fifth day, 58% of wounds in the TT group were fully healed compared to 26% of wounds in the control group. On day 10, 83% of TT treated wounds and 33% of control group wounds were healed.

Daley reviewed five randomized,
double-blind, placebo-controlled studies examining the effect of therapeutic touch/noncontact therapeutic touch on the healing of surgical dermal wounds. Results were inconsistent. More well-designed large trials are needed to confirm wound healing outcomes related to touch.

**Aromatherapy.** Aromatherapy employs plant-based, properly diluted essential oils. Individuals inhale the oil scents that may be placed in a potpourri bowl, manually massaged on the skin by a licensed massage therapist, or occasionally placed on top of a wound by a registered nurse or other trained healthcare professional with the advice and consent of a physician.\(^\text{31,32}\) Inhaled peppermint oil (*Mentha x piperita*) is used for wound odor control, and lavender (*Lavandula officinalis*) essential oil may be helpful for relaxation.

Kane et al\(^\text{33}\) recommend the use of adjunctive analgesia involving aromatherapy (along with music) when changing wound dressings. In a pilot, within-subject, cross-over study, eight patients with a variety of wounds (eg, lower leg and foot ulcers, amputation stump, pilonidal sinus) were exposed to lavender and lemon essential oils diffused by an aroma-stream diffuser (Tisserand Aromatherapy, Hove East Sussex, UK) during the entire dressing procedure for odor control. In addition, two different music therapies (eg, “relaxing” with Carnelian and “preferred” preselected by the patient) were provided during the procedures when aromatherapy was/was not used (control group). Results indicated that none of the therapies reduced pain intensity during dressing changes, but when patients received lavender therapy and relaxing music they reported less pain after dressing change was completed. Larger well-designed trials are warranted to better understand the potential role of aromatherapy and music therapy combined during dressing changes for patients with chronic wounds.

**Honey.** As seen in *vitro* studies,\(^\text{34}\) topical therapeutic (medical grade) honey may inhibit bacterial growth due to its high sugar content, acid pH, hydrogen peroxide production within the wound to aid in debridement, and moisture. Subrahmanyam\(^\text{35}\) described a prospective, randomized, clinical, histological study of burn wound healing in two groups of 25 patients assigned to either topical therapeutic honey or topical silver sulfadiazine. In the honey-treated group, 84% of patients demonstrated epithelialization by day 7, and all patients demonstrated satisfactory wound healing by day 21. In the silver sulfadiazine treated group, epithelialization was present by day 7 for 72% of patients and by day 21 for 84% of patients. Regarding histological evidence of wound healing, 80% of patients treated with honey showed wound improvement by day 7 compared to 52% of silver sulfadiazine treated patients by day 7. These outcomes continued to improve for both groups up to 21 days of treatment.

Medical grade honey should be applied only with the advice and consent of a physician. Bacterial susceptibility varies based on length of topical exposure to therapeutic honey. Burkholderia
**Integrative Approaches to Confounding Issues**

**Incontinence.** In addition to a general negative effect on patient quality of life, fecal incontinence — ie, involuntary loss of stool — in patients with wounds in the pelvic region can lead to wound infections and impaired healing. Perineal moisture-associated skin damage or incontinence-associated skin damage (MASD or IASD) can be caused by moisture and pH changes secondary to the wearing of a containment brief holding urine and feces next to the skin for prolonged times in incontinent patients. When urinary and fecal incontinence combine, the skin pH becomes alkaline and the skin barrier is compromised. The use of appropriate skin cleansers and the application of a barrier cream such as 3M™ Cavilon™ Durable Barrier Cream (3M Health Care, St. Paul, MN) or barrier film may help protect skin against the effects of incontinence.

Different types of biofeedback therapy for fecal incontinence have been reviewed in the literature. Randomized, controlled trials involving anorectal instrumentation to encourage patient awareness and subsequent modification of voluntary functions have been conducted in medical and surgical patients. Results from these trials ranged from no significant difference between the biofeedback groups and control groups to significant difference between the two. In a randomized, controlled, prospective trial, Aksac et al studied pelvic-floor muscle exercises or biofeedback in 50 patients who had urinary stress incontinence. Patients were randomized to three groups. Persons in group one were taught pelvic-floor muscle exercises by way of digital palpation at the clinic and then taught to perform this palpation at home. Group two was taught pelvic-floor muscle exercises through biofeedback three times weekly for two months. Group three did not have any intervention, biofeedback-assisted pelvic floor muscle exercises reduced the frequency of urinary incontinence and improved the patients' quality of life.

Other controlled and uncontrolled clinical trials in the elderly and in urogynecological patient populations comparing pelvic floor exercises with and without biofeedback, acupuncture, hypnosis, and herbal therapies have been published. Of the interventions cited, authors concluded biofeedback has the most promise for success in reducing urinary incontinence frequency.

**Peristomal skin complications.** Peristomal skin complications (eg, regarding ostomy and stoma) can have an impact on the chronic wound patient's quality of life and risk of wound infection. The Paula Erwin Toth (PET) model for ostomy care promises for success in reducing urinary incontinence frequency.

**Nutrition/dietary supplements.** Chronic wound patients are at risk for nutritional deficiencies. The best integrative nutritional plan for general health, including wound healing, starts with the Mediterranean Diet because it details a diet rich in protein, antioxidants, and anti-inflammatory foods that assist the body's natural immune system in healing. Colorful antioxidant foods recommended in this diet include, but are not limited to, blueberries, cherries, tomatoes, green tea, red grapes, and red wine. Resveratrol is an antioxidant found in the skin and seeds of red grapes. Anti-inflammatory foods are canola oil, extra virgin cold pressed olive oil (MUFA), walnuts, oily fish, and avocados. In addition to featuring antioxidants and anti-inflammatory foods, the Mediterranean Diet encourages the intake of protein through such foods as kidney beans, pinto beans, fish, low fat dairy, Quinoa, and nuts; oily fish containing omega-3 fatty acids and protein include sardines, herring, wild pacific salmon, and light canned tuna. A healthy nutritional regimen with enough protein, probiotic (eg, kefir), and antioxidant (eg, vitamin C, vitamin A, zinc) intake promotes a healthy immune system for better wound healing. Results of a pilot study in which investigators performed tests for serum albumin, prealbumin, and amino acid profiles on 18 hospital patients with chronic wounds and seven patients without wounds suggest that protein or amino acids, tryptophan, and histidine may be low in elderly people with chronic wounds.

In addition to good nutrition with whole foods, many people seek dietary supplement strategies for general health, immune enhancement, and wound healing. Nearly 60,000 herbs and other dietary supplements are available on the international market and include American, Chinese, Kampo (Japanese), Ayurveda...
(Indian), homeopathic, and other nutraceutical remedies. In an observational study, Brewer assessed use of 9 g of a commercial powdered arginine supplement daily to shorten healing time of pressure ulcers in 18 spinal cord injured patients. These healing rates were compared to historical controls in different patients and found to be shorter in the active treatment group. Even though results in this study were positive, no general recommendation has been conferred on arginine or any other dietary supplements to promote healing in persons with pressure ulcers.

**Herbs and other dietary supplements.** Plant-based herbs typically contain multiple active constituents, not all of which have been categorized regarding potential indication for use, quality standardization/production, or long-term side effects. Chronic wound patients should work with a pharmacist who understands interactions and side effects among prescription and over-the-counter medications, herbs, other dietary supplements; nutritional products help keep chronic wound patients safe and maximize health outcomes.

**Sleep.** Patients with chronic wound pain and discomfort may have profound sleep deficits. Integrative practices for addressing sleep disorders in the general population include acupuncture, yoga breathing, and Tai Chi, although research about the effectiveness of these interventions remains limited.

The most important first step may be seeking a sleep assessment with a physician sleep specialist or a holistic dentist trained to recognize and rule out airway changes that may impact nighttime breathing in the patient, at the same time addressing pain in the chronic wound patient. From the author’s general observations, several interventions worth trying include:

- Taking a hot shower before bedtime to allow the body to gradually cool down for sleep
- Sticking to a regular sleep schedule
- Drinking a glass of cow’s milk, soy milk, or almond milk before bedtime. Milk products contain a minute amount of the essential amino acid tryptophan, which stimulates the hormone melatonin, a natural constituent in the body, to assist with sleep. Adding a dash of nutmeg to the milk will help the effects last longer
- Drinking a cup of decaffeinated green tea. Green tea contains L-theanine, a relaxing constituent
- Writing down concerns of the day on a piece of paper and placing the paper in another room to discourage thoughts about the concerns during sleep hours
- Cooling the bedroom as much as possible to allow the body’s natural melatonin levels to rise and assist with falling asleep
- Applying a drop of diluted lavender essential oil on the pillow as a relaxing fragrance
- Playing recordings of nature sounds to help relax
- Breathing deeply (10 seconds inhaling, 10 seconds...
Exercise. Exercise is important for the chronic wound patient. For wheelchair-bound or immobile patients, in-place stretching, leg lifts, and passive exercises are options for general health, range of motion, and increased circulation for wound healing. Bone-stressing exercise to maintain wrist, hip, and spine bone density is also important. Ambulation/exercise of the calf muscle pump may be contraindicated in persons with venous ulcers. The advice and consent of the physician must be sought by the patient before commencing exercise to protect the involved body part with the wound.

Social health. Relationships frequently suffer when a patient is dealing with a chronic illness. Good relationships and social interactions are universally healing. Intuitively, the wound care patient may be too embarrassed to socialize for fear of upsetting those around him/her who do not understand or are affected by the physical appearance of the wound. Maintaining a social network is important for wound care patients even if only by email or telephone for emotional support. Gallagher details the impact of patients’ cultural beliefs on health and healing and that both should be addressed by healthcare professionals in patients with chronic illness.

Emotional health/stress management. Dealing with emotions from living with a chronic wound is stressful and challenging at best. From a physical perspective, stress-reduction techniques, such as deep breathing, may improve surgical wound healing and general health. Broadbent conducted a controlled study of patients scheduled for an elective laparoscopic cholecystectomy. Participants were randomized to standard care or standard care and guided imagery with take home CDs to listen to for relaxation for 3 days before and 7 days after surgery. Both groups had abdominal tubes inserted during surgery and removed 7 days after surgery. These tubes were analyzed for hydroxyproline as a measure of collagen deposition and wound healing. Participants in the guided imagery group had higher amounts of hydroxyproline deposition in the wound than persons in the control group ($P = 0.03$).

Unhealthy emotions regarding living with a chronic wound can sometimes be difficult to overcome without professional intervention. Integrative practices used by the author to improve emotional well-being and promote peace and positive patient self-image include:

- Talking out stressful emotions with a trusted friend.
- Repeating affirming statements (ie, I’m going to get well, I’m loved, I’m blessed, I’m thankful for….)
- Seeking out sources that promote laughter (ie, people, movies, books)
- Employing the five senses (ie, taste, touch, smell, sight, hearing) in appreciating nature

Spiritual health. Spiritual approaches to general healing have been described in the literature. As much as the chronic wound care patient is able, worship at the church, synagogue, mosque, or via radio/television services may assist in staying connected to a higher power and in spiritual healing. Alternatively, a relationship with one’s higher power through prayer is another healing option. End-of-life concerns expressed by patients with chronic wounds need to be acknowledged and addressed by a professional spiritual leader in the community.

The Integrative Health and Medicine Team

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Research

The National Institute of Health National Center for Complementary and Alternative Medicine (NCCAM) and Bravewell organizations are on the forefront of integrative medicine research. Ongoing NCCAM-sponsored research includes the areas of acupuncture for insomnia and pain, massage, and yoga for insomnia and caregiver stress. The reader is referred to www.clinicaltrials.gov for more information on these studies.

The Bravewell network includes the Scripps Center for Integrative Medicine in California, The Continuum Center for Health and Healing in New York, Duke Center for Integrative Medicine in North Carolina, Jefferson-Myrna Brind Center for Integrative Medicine at Thomas Jefferson Medical College in Pennsylvania, the Center for Integrative Medicine at the University of Maryland School of Medicine, Osher Center for Integrative Medicine at the University of California, San Francisco, The Alliance Institute for Integrative Medicine in Cincinnati, Ohio,
and the Institute of Health and Healing at Abbott Northwestern Hospital in Minnesota. For more information, the reader is referred to www.bravewell.org.

When reviewing studies on acupuncture or any nontraditional medicine-related studies, the clinician and patient should be aware of how the research model is designed and conducted, including study limitations, when interpreting results. For example, results may be biased due to the placebo effect for pain management.13,14

**Conclusion**

Numerous integrative healthcare options are available to palliative care patients with chronic wounds, including those for whom symptom relief, not healing, is the goal of care. The first step for chronic wound patients entering the world of integrative medicine is a visit to the traditional medical physician for a conversation about her/his comfort in developing an integrative team approach to healing. Next comes researching the credibility of individual practitioners and practices as well as the fit with the patient’s health goals. Many integrative health and medicine practices may have value in promoting wound healing, reducing pain, and promoting general health and peace for chronic wound patients. Nontraditional medicine research, including areas of nutrition and wound healing, will continue to evolve to help caregivers better understand how to optimize patient-centered, complex care that often requires multiple interventions to achieve the goals of therapy.

**References**