



Fred Hutch · Seattle Children's · UW Medicine

# The Benefits of Acupuncture During Cancer Survivorship

**Jonathan Siman, DACM, MS, LAc**  
Lead Acupuncturist  
Integrative Medicine, SCCA

June 1st, 2019

# Objectives

- Background
- Integrative Medicine Definitions
- Basics of acupuncture
  - TCM theories
  - Biomedical theories
- What to expect during an acupuncture treatment
- Commonly treated conditions
- Self-Acupressure
- Current acupuncture research

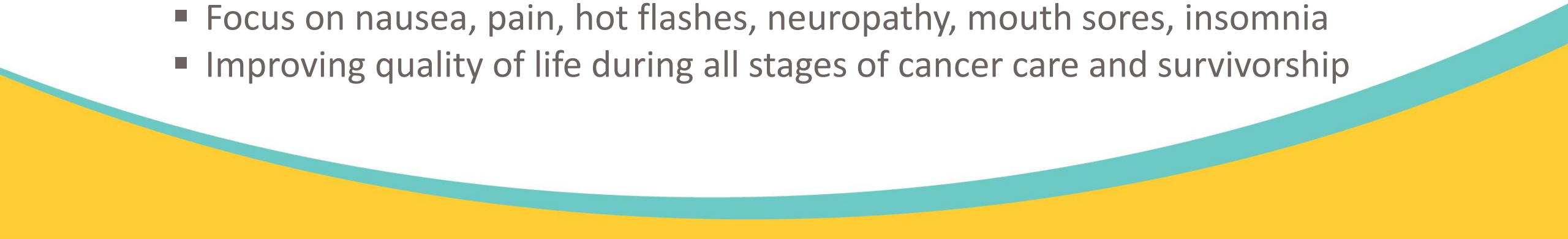
# Jonathan Siman, DACM, MS, LAc

Lead Acupuncturist, SCCA Integrative Medicine

## ■ Training

- Doctor of Acupuncture and Chinese Medicine
- Board Certified Diplomate of Oriental Medicine: Acupuncture & Herbal Medicine
- Washington State Licensed Acupuncturist
- Previously worked as Clinical and Research Acupuncturist at Memorial Sloan Kettering Cancer Center

## ■ Clinical Focus

- Mitigating side effects associated with chemotherapy, radiation and surgery
  - Focus on nausea, pain, hot flashes, neuropathy, mouth sores, insomnia
  - Improving quality of life during all stages of cancer care and survivorship
- 

# What is Integrative Oncology?

Integrative oncology is a **patient-centered**, evidence-informed field of cancer care that utilizes mind and body practices, natural products, and/or lifestyle modifications from different traditions **alongside conventional cancer treatments**.

Integrative oncology aims to **optimize health, quality of life, and clinical outcomes** across the cancer continuum and to empower people to prevent cancer and become active participants before, during and beyond cancer treatment.

# Definitions

## Traditional therapies

- *Culturally-based health practices*

## Alternative therapies

- *Used in place of conventional medicine*

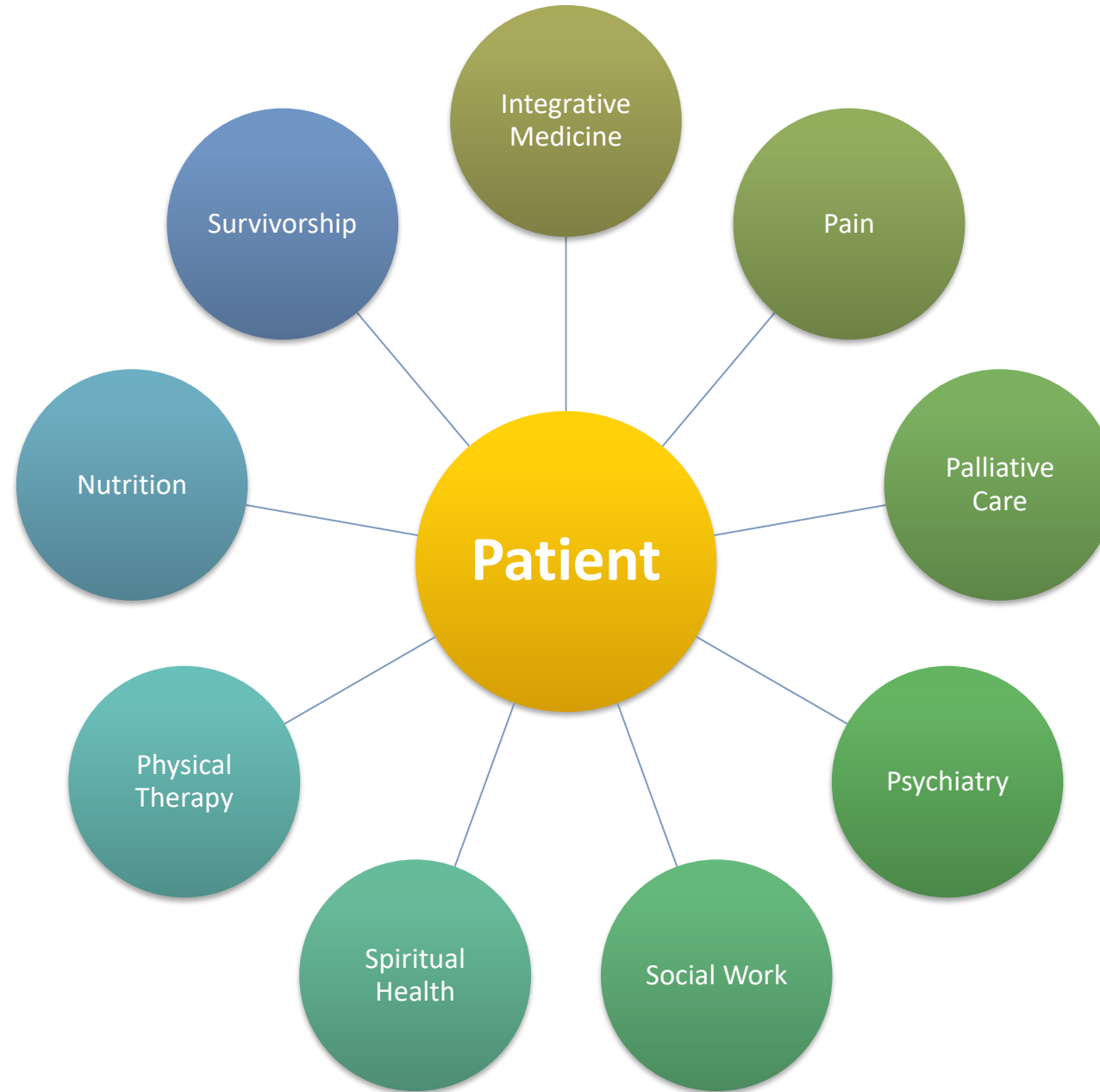
## Complementary therapies

- *Used with conventional medicine*

## Integrative medicine

- *Evidence-based use of complementary therapies in conjunction with conventional therapies*

# Interdisciplinary Supportive Care at SCCA



# Acupuncture and TCM Basics

## Commonly asked questions

- What does acupuncture treat?
- How does acupuncture work?
- What sensations will the patient experience?
- Does acupuncture hurt?



# Traditional Chinese Medicine (TCM)

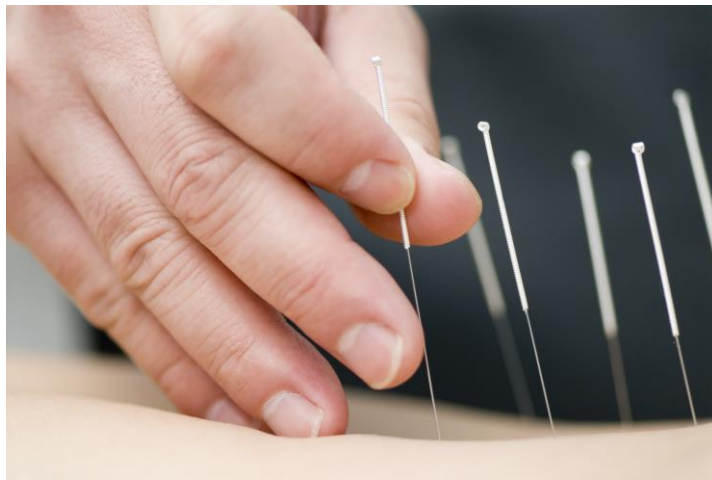
- Acupuncture
- Herbal Medicine
- Exercise
- Diet
- Manipulation/Massage
- Moxa/Cupping

**An emphasis is placed on lifestyle changes and preventative care to promote health and well being**

# Definition

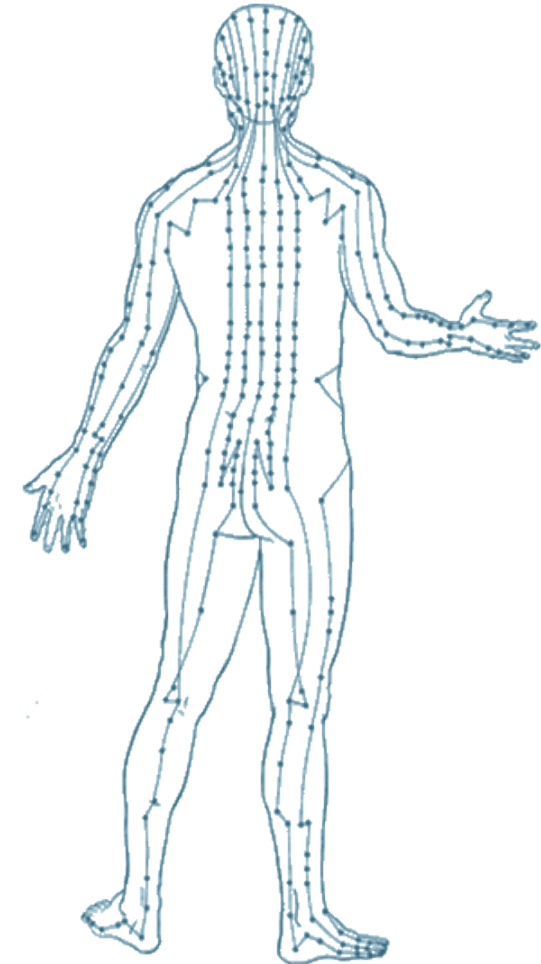
The term “acupuncture” describes a family of procedures involving the stimulation of points on the body using a variety of techniques.

The acupuncture technique that has been most often studied scientifically involves penetrating the skin with thin, solid, metallic needles that are manipulated by the hands or by electrical stimulation.



# TCM: Acupuncture

Traditional Chinese Medicine (TCM) explains acupuncture as a method for balancing the flow of energy— known as *Qi* (Chi) — believed to flow through pathways (meridians) in your body.



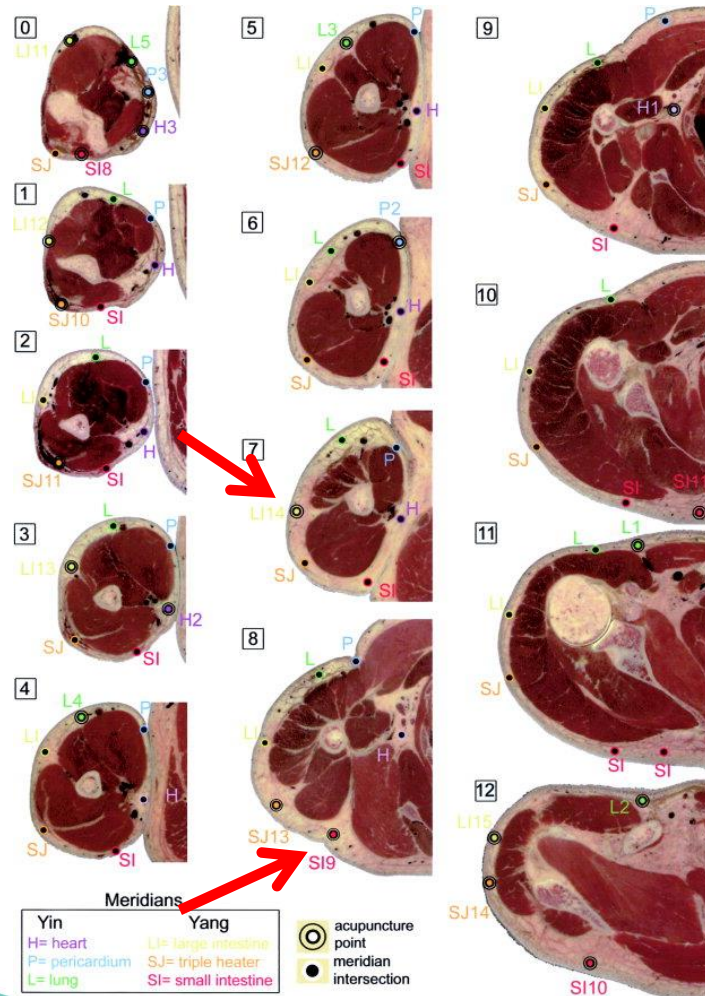
# TCM theory: Pain

- Pain arises when there is obstruction of the free flow of qi within the channels (meridians).
- By manipulating specific acupuncture points you can restore the free flow of qi and relieve pain.

# What are the meridians?

- Coincide in part with trigger points and myofascial planes
- Acupuncture points are places to stimulate nerves, muscles and connective tissue.
  - This stimulation can release your body's natural painkillers, increases blood flow and reduce inflammation
- Appear rich in nerve endings
- Have lower electrical resistance than surrounding tissue

# Acupuncture points and myofascia



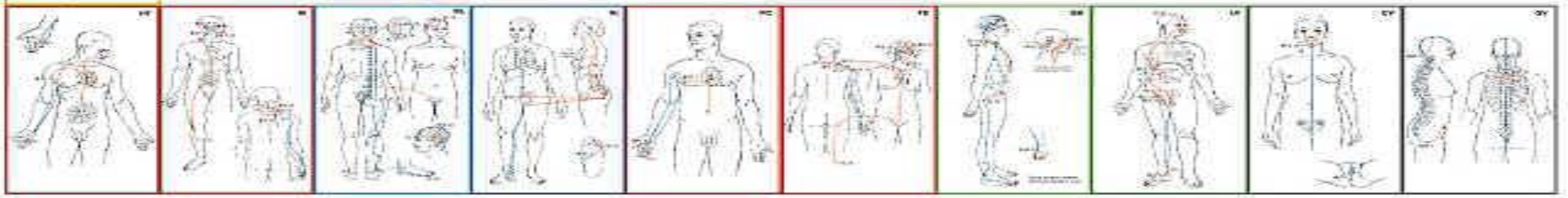
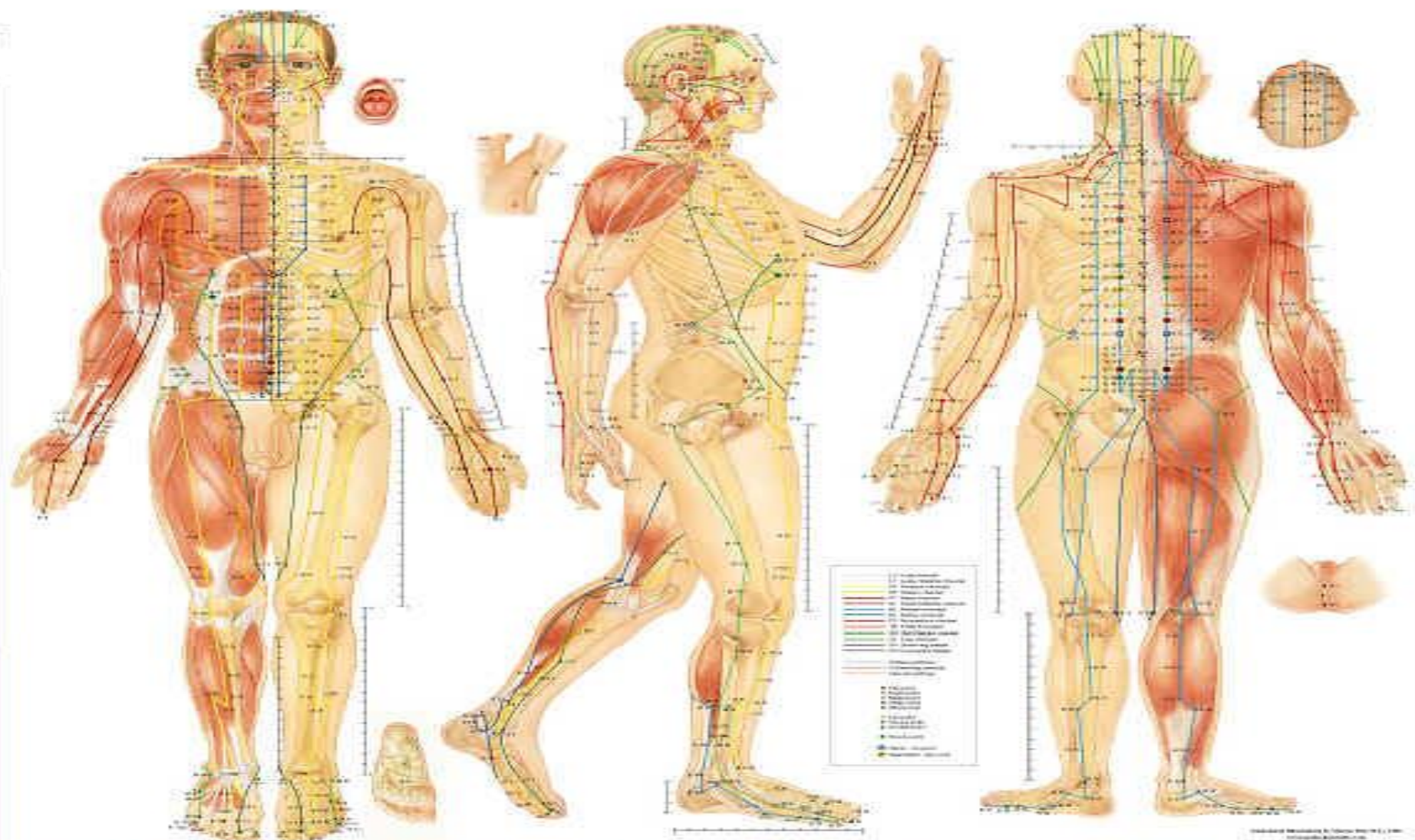
Location of acupuncture points and meridians in serial gross anatomical sections through a human arm

*Langevin & Yandow, Anat Rec. 2002; 269:257-65*



# ACUPUNCTURE

MAJOR POINTS AND MERIDIANS



# Biomedical theory: Acupuncture and the treatment of pain

- Acupuncture is known to stimulate release of endogenous opioids (i.e. endorphins, enkephalins, dynorphins).
- Studies have demonstrated that acupuncture can induce analgesia, but that these effects were blocked by naloxone, an opioid antagonist.



# Acupuncture Treatments

# Acupuncture needles



**Match Stick**



**Medical Syringe**



**Sewing Needle**



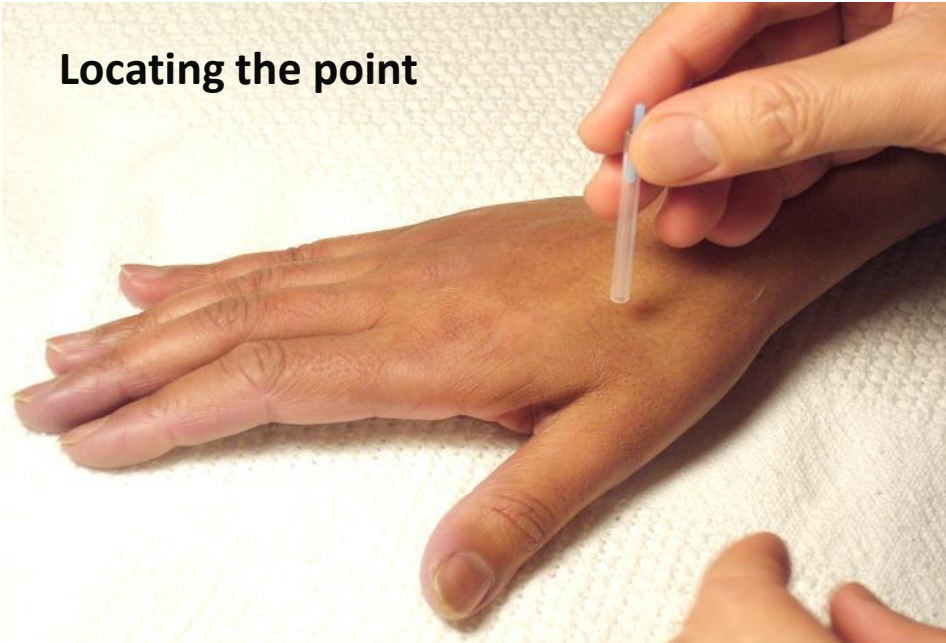
**Acupuncture Needle**

# Acupuncture treatments

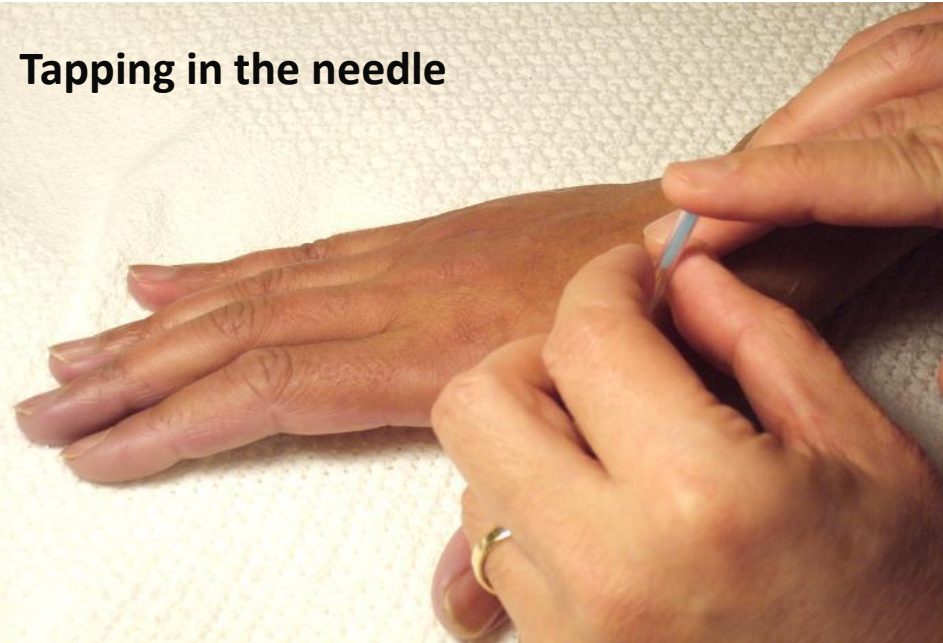
- Intake & History
- Pattern diagnosis and point selection
- Needle insertions are usually painless
- Needles are retained for 30 mins
- A typical course of acupuncture is 8-10 treatments
- Treatments are usually given 1-2x per week
- The effects of acupuncture treatments are cumulative
- # of treatments and frequency varies based on condition and patient response

# Needling technique

**Locating the point**



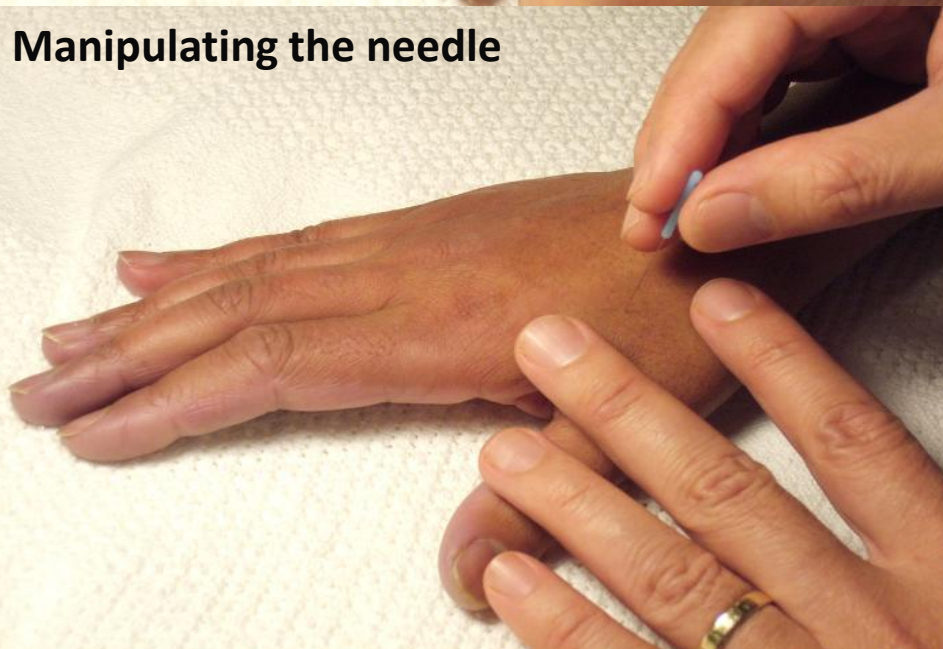
**Tapping in the needle**



**Removing the guide tube**



**Manipulating the needle**



# Free-hand technique





# Commonly Treated Conditions

# Commonly treated conditions

- Pain
  - Low back Pain Neck Pain
  - Arthritis, Tendonitis
  - Post-surgical pain
- Nausea/Vomiting, loss of appetite
- Manage side-effects of hormonal therapy
  - Joint pains (from AIs)
  - Hot-flashes (from SERMs)
- Chemotherapy Induced Peripheral Neuropathy (CIPN)

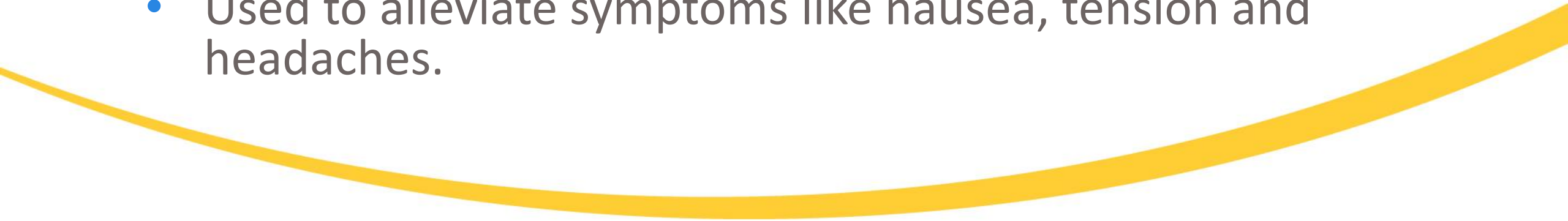
## Conditions treated (continued)

- Gastrointestinal tract dysfunction
  - Constipation (OIC)
  - Diarrhea
- Headaches (including migraines, sinus h/a)
- Xerostomia (Dry mouth)
- Stress/Anxiety
- Insomnia



# Acupressure for Self Care

# Acupressure for Self Care

- Patients and caregivers can perform acupressure on their own as needed
  - Uses pressure on points instead of needles
  - Stimulate point at least 1 - 2 minutes
  - Discontinue or reduce pressure if painful, or symptoms worsen
  - May provoke a “nerve-like”, heavy, or achy sensation at the point (*de qi*)
  - Used to alleviate symptoms like nausea, tension and headaches.
- 

# Acupressure for Nausea and Vomiting: Point PC-6

**Step 1:** Place your hand so your palm is facing up

**Step 2:** Place 3 fingers of your opposite hand across your wrist. Then, place your thumb on the point just below your index finger. You should be able to feel two large tendons under your thumb.

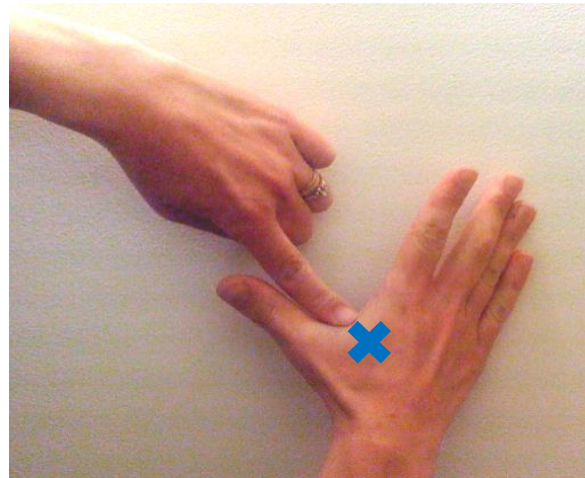
**Step 3:** Using your thumb, apply pressure on this point between the tendons for 1-2 minutes.



# Acupressure for Headache and Pain: Point LI-4

**Step 1:** Locate point at center of “V” between thumb and index finger

**Step 2:** With hand flexed, massage the muscle between the thumb and index finger. Apply firm pressure for 1-2 min, repeat on opposite hand and as often as needed.



# Acupressure for Anxiety: Point Yin Tang

**Step 1:** Sit back in a comfortable position.

**Step 2:** Place your right thumb or forefinger between your eyebrows (see figure).

**Step 3:** Apply pressure in a circular motion on this point for 1-3 minutes. The pressure should be gentle and should not cause pain.



**Research/Safety**



# Safety

**Table 1. Nonserious Adverse Events of Acupuncture Reported in 97 733 Patients**

<b>Event</b>	<b>No.</b>	<b>% of Total</b>	<b>99% Confidence Interval</b>
Needling pain	3202	3.28	3.13-3.43
Hematoma	3114	3.19	3.04-3.34
Bleeding	1346	1.38	1.28-1.48
Orthostatic problems	447	0.46	0.40-0.52
Forgotten needles	242	0.25	0.21-0.29
Other	674	0.69	0.62-0.76
Local skin irritation	173		
Deterioration of symptoms	118		
Headache	38		
Fatigue	26		
Any nonserious adverse event	6936	7.10	6.88-7.32

*Melchart et al. 2004 German study: 97,733 patients, >760,000 treatments, ([Arch Intern Med.](#) 2004 Jan 12;164(1):104-5.) :*

*Only 6 patients of >760,000 had serious adverse events (AEs) (asthma attack, vasovagal reaction, hypertensive crisis, exacerbation of depression)*



## Acupuncture-Point Stimulation for Chemotherapy-Induced Nausea and Vomiting

Jeanette Ezzo, Andrew Vickers, Mary Ann Richardson, Claire Allen, Suzanne L. Dibble, Brian Issell, Lixing Lao, Michael Pearl, Gilbert Ramirez, Joseph A. Roscoe, Joannie Shen, Jane Shivnan, Konrad Streitberger, Imad Treish, and Grant Zhang

From JPS Enterprises, Baltimore, MD; Memorial Sloan-Kettering Cancer Center, New York, NY; National Foundation for Alternative Medicine, Washington, DC.

Submitted June 3, 2004; accepted May 9, 2005.

Supported by the Danish Cancer Society and ViFab (Videns- og Forsknings-Center for Alternative Behandling; The Knowledge and Research Center for Alternative Medicine), the National Cancer Institute, and the National Center for Complementary and Alternative Medicine. Early funding was provided by the National Institutes of Health Grant No. U24 CA66826-03 through the National Center for Complementary and Alternative Medicine and the National Cancer Institute.

The results of this study have not been published or presented elsewhere.

Authors' disclosures of potential conflicts of interest are found at the end of this article.

Address reprint requests to Jeanette Ezzo, MPH, PhD, Director of Research, JPS Enterprises, 1905 W Rogers Ave, Baltimore, MD 21209; e-mail: jeannette@jpsenterprises.com.

### A B S T R A C T

#### Purpose

Assess the effectiveness of acupuncture-point stimulation on acute and delayed chemotherapy-induced nausea and vomiting in cancer patients.

#### Materials and Methods

Randomized trials of acupuncture-point stimulation by needles, electrical stimulation, magnets, or acupressure were retrieved. Data were provided by investigators of the original trials and pooled using a fixed-effects model.

#### Results

Eleven trials (N = 1,247) were pooled. Overall, acupuncture-point stimulation reduced the proportion of acute vomiting (relative risks [RR] = 0.82; 95% CI, 0.69 to 0.99; *P* = .04), but not the mean number of acute emetic episodes or acute or delayed nausea severity compared with controls. By modality, stimulation with needles reduced the proportion of acute vomiting (RR = 0.74; 95% CI, 0.58 to 0.94; *P* = .01), but not acute nausea severity. Electroacupuncture reduced the proportion of acute vomiting (RR = 0.76; 95% CI, 0.60 to 0.97; *P* = .02), but manual acupuncture did not; delayed symptoms were not reported. Acupressure reduced mean acute nausea severity (standardized mean difference = -0.19; 95% CI, -0.38 to -0.01; *P* = .03) and most severe acute nausea, but not acute vomiting or delayed symptoms. Noninvasive electrostimulation showed no benefit for any outcome. All trials used concomitant pharmacologic antiemetics, and all, except electroacupuncture trials, used state-of-the-art antiemetics.

#### Conclusion

This review complements data on postoperative nausea and vomiting, suggesting a biologic effect of acupuncture-point stimulation. Electroacupuncture has demonstrated benefit for chemotherapy-induced acute vomiting, but studies with state-of-the-art antiemetics as well



# Acupuncture for Chronic Pain

## *Individual Patient Data Meta-analysis*

Andrew J. Vickers, DPhil; Angel M. Cronin, MS; Alexandra C. Maschino, BS; George Lewith, MD; Hugh MacPherson, PhD; Nadine E. Foster, DPhil; Karen J. Sherman, PhD; Claudia M. Witt, MD; Klaus Linde, MD; for the Acupuncture Trialists' Collaboration

**Background:** Although acupuncture is widely used for chronic pain, there remains considerable controversy as to its value. We aimed to determine the effect size of acupuncture for 4 chronic pain conditions: back and neck pain, osteoarthritis, chronic headache, and shoulder pain.

**Methods:** We conducted a systematic review to identify randomized controlled trials (RCTs) of acupuncture for chronic pain in which allocation concealment was determined unambiguously to be adequate. Individual patient data meta-analyses were conducted using data from 29 of 31 eligible RCTs, with a total of 17 922 patients analyzed.

**Results:** In the primary analysis, including all eligible RCTs, acupuncture was superior to both sham and no-acupuncture control for each pain condition ( $P < .001$  for all comparisons). After exclusion of an outlying set of RCTs that strongly favored acupuncture, the effect sizes were similar across pain conditions. Patients receiving acupuncture had less pain, with scores that were 0.23

(95% CI, 0.13-0.33), 0.16 (95% CI, 0.07-0.25), and 0.15 (95% CI, 0.07-0.24) SDs lower than sham controls for back and neck pain, osteoarthritis, and chronic headache, respectively; the effect sizes in comparison to no-acupuncture controls were 0.55 (95% CI, 0.51-0.58), 0.57 (95% CI, 0.50-0.64), and 0.42 (95% CI, 0.37-0.46) SDs. These results were robust to a variety of sensitivity analyses, including those related to publication bias.

**Conclusions:** Acupuncture is effective for the treatment of chronic pain and is therefore a reasonable referral option. Significant differences between true and sham acupuncture indicate that acupuncture is more than a placebo. However, these differences are relatively modest, suggesting that factors in addition to the specific effects of needling are important contributors to the therapeutic effects of acupuncture.

*Arch Intern Med.* 2012;172(19):1444-1453.

Published online September 10, 2012.

doi:10.1001/archinternmed.2012.3654

# Background

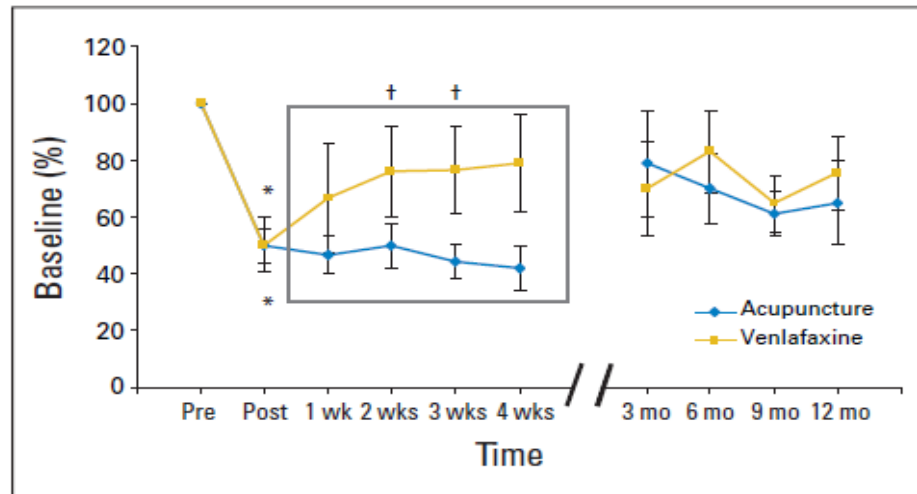
- Despite the efficacy of aromatase inhibitors (AIs), many patients suffer from joint side effects --> leading to non-compliance.
- Compliance to AIs is associated with improved disease-free survival.
- Acupuncture is a popular non-pharmacologic modality for the treatment of a variety of medical conditions.
- Several small studies have suggested acupuncture may be beneficial for AI-arthralgias; however others have shown no benefit.
- The overall interpretation of these trials has been uncertain due to short duration, small sample sizes and differences in methodology.

Hershman, DL. JCO, 2008  
Chrigwin. JH. JCO, 2016  
Crew, KD. JCO, 2010

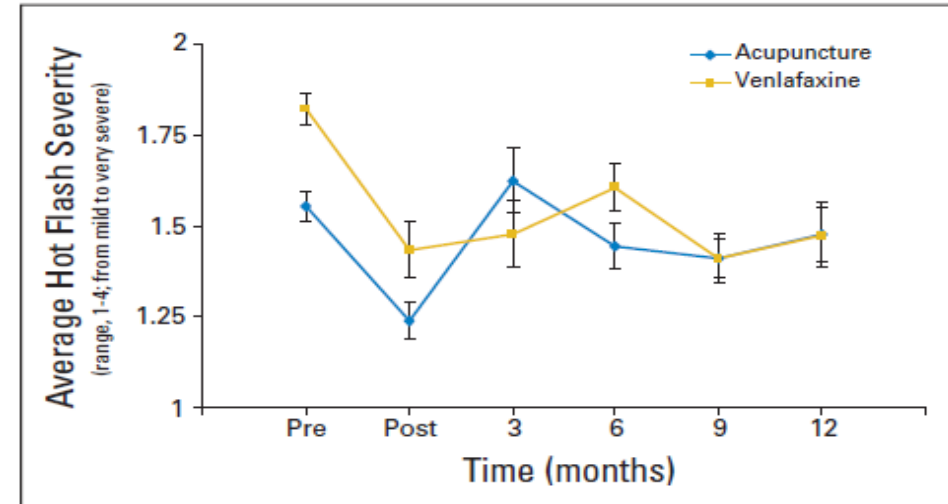
# Hot Flashes: Acupuncture vs Venlafaxine

Walker, et al. *J Clin. Oncol.* 2010 Feb 1;28(4):634-40. Epub 2009 Dec 28.

*Acupuncture versus venlafaxine for the management of vasomotor symptoms in patients with hormone receptor-positive breast cancer: a randomized controlled trial. (N=50)*



**Fig 3.** Hot flash frequency (mean ± SE of the mean) as a percentage of baseline for acupuncture and venlafaxine groups at pretreatment (Pre), post-treatment (Post), and follow-up times of 1, 2, 3, and 4 weeks and 3, 6, 9, and 12 months post-treatment. Boxed area highlights the additional analysis of the first 4 weeks post-treatment. (\*)  $P < .05$ , significantly different from Pre; (†)  $P < .05$ , significantly different from Post.



**Fig 4.** Hot flash severity (mean ± SE of the mean) for acupuncture and venlafaxine groups at pretreatment (Pre), post-treatment (Post); and 3, 6, 9, and 12 months follow-up with significant effect of time, but no group or interaction effects.

“Acupuncture may be a safe and effective alternative to drug therapy for reducing hot flashes in breast cancer patients.”

JAMA | **Original Investigation**

# Effect of Acupuncture vs Sham Acupuncture or Waitlist Control on Joint Pain Related to Aromatase Inhibitors Among Women With Early-Stage Breast Cancer

## A Randomized Clinical Trial


Dawn L. Hershman, MD, MS; Joseph M. Unger, PhD, MS; Heather Greenlee, ND, PhD; Jillian L. Capodice, MS, LAc; Danika L. Lew, MA; Amy K. Darke, MS; Alice T. Kengla, MD; Marianne K. Melnik, MD; Carla W. Jorgensen, MD; William H. Kreisle, MD; Lori M. Minasian, MD; Michael J. Fisch, MD; N. Lynn Henry, MD; Katherine D. Crew, MD, MS

**IMPORTANCE** Musculoskeletal symptoms are the most common adverse effects of aromatase inhibitors and often result in therapy discontinuation. Small studies suggest that acupuncture may decrease aromatase inhibitor-related joint symptoms.

**OBJECTIVE** To determine the effect of acupuncture in reducing aromatase inhibitor-related joint pain.

**DESIGN, SETTING, AND PATIENTS** Randomized clinical trial conducted at 11 academic centers and clinical sites in the United States from March 2012 to February 2017 (final date of follow-up, September 5, 2017). Eligible patients were postmenopausal women with early-stage breast cancer who were taking an aromatase inhibitor and scored at least 3 on the Brief Pain Inventory Worst Pain (BPI-WP) item (score range, 0-10; higher scores indicate greater pain).

 [Supplemental content](#)

 [Related article at  
jamaoncology.com](#)

# Conclusions

---

- We have shown consistently, with multiple measures assessing pain and stiffness, that true acupuncture generated better outcomes than either control group in a large multicenter randomized controlled trial.
- Transitioning from twice-a-week to once-a-week acupuncture maintained the effect of the intervention.
- The intervention effects persisted 12 weeks following completion of the intervention.
- The toxicity of the intervention was minimal and limited to grade 1 bruising.

# Clinical implications

---

- Acupuncture provides a non-pharmacologic option that can improve symptoms and possibly increase AI adherence + subsequent BC outcomes.
- For patients reluctant to take a prescription medication, that can result in other side effects, acupuncture provides a safe and effective alternative.
- Identification of non-opioid options for pain control is a public health priority.

# SCCA Integrative Medicine Team



# SCCA Integrative Medicine Clinical Team

- **Naturopathic Physician:** Heather Greenlee, ND, PhD
- **Nurse Practitioner:** Kathleen Sanders, ARNP-BC, MSN, MPH
- **Acupuncturist:** Jonathan Siman, DACM, MS, LAc
- **Clinical Manager:** Elizabeth Stohr, MSN, RN





# Naturopathic Physician

Heather Greenlee, ND, PhD, MPH



- **Training & Leadership**

- Board certified in Naturopathic Medicine
- Acupuncture & Traditional Chinese Medicine
- Past President, Society for Integrative Oncology
- Member, Academic Consortium for Integrative Medicine & Health
- NIH-funded integrative health research portfolio since 2001

- **Clinical Focus**

- Evaluate & guide an evidence-informed integrative medicine care plan
- Safe and appropriate use of dietary supplements and natural products
- Practical implementation of national recommendations for nutrition, physical activity and weight management for cancer survivors

# Integrative Medicine Nurse Practitioner

**Kathleen Sanders, ARNP-board certified, MSN, MPH**



## ■ Training

- Board certified in Family Medicine
- Fellowship in Integrative Medicine
- Mindfulness Based Stress Reduction Training
- Mindfulness Based Eating Awareness
- Guided Imagery
- Clinical Hypnosis
- Auricular Acupuncture
- Previously - Columbia University, NYU, Stamford Hospital

## ■ Clinical Focus

- Evaluate & guide an evidence-informed integrative medicine care plan
- Mind-body medicine
- Safe and appropriate use of dietary supplements and natural products



## Patient Support

### – Medical Support Services

Medical Support Services

During Your Care

Integrative Medicine

Psychiatry and Psychology  
Services

Nutrition

Genetic Counseling

Pain Care

Physical Therapy

Sexuality Concerns and Cancer

Supportive and Palliative Care

## Integrative Medicine

Integrative Medicine is a patient-centered, evidence-informed field of cancer care that utilizes mind and body practices, acupuncture, therapeutic massage, therapeutic yoga, natural products and lifestyle modifications, together with conventional cancer treatments.

While medical treatments focus on fighting the disease, Integrative Medicine, in collaboration with our other medical support services, can help you cope with treatment side effects and enhance your wellness and quality of life. Integrative Medicine providers at SCCA will work closely with your care team.

At Seattle Cancer Care Alliance (SCCA), we believe state-of-the-art care includes support for the healing of our patients in body, mind and spirit.



## How Integrative Medicine can help

Integrative Medicine therapies and practices can be empowering, therapeutic tools to help relieve cancer- and treatment-related side effects and improve overall wellness and quality of life during any stage of treatment and survivorship.

What is included in an SCCA Integrative Medicine visit?

## Questions about Integrative Medicine?

Ask your care team or email us at  
[integrativemedicine@seattlecca.org](mailto:integrativemedicine@seattlecca.org).

**Thank you!**

**Questions?**