Target Audience

- The overarching goal of PCSS is to train a diverse range of healthcare professionals in the safe and effective prescribing of opioid medications for the treatment of pain, as well as the treatment of substance use disorders, particularly opioid use disorders, with medication-assisted treatments.

Outline

1. Review the current literature supporting effectiveness of yoga for chronic pain
2. Understand the evolving neuroscience that makes yoga an effective mind-body intervention to improve chronic pain
3. Introduce the practice of acupuncture
4. Demonstrate the spectrum of scientific evidence supporting the clinical effects and revealing the physiologic effects of acupuncture
5. Show how acupuncture has become a mainstream practice in large medical systems in the US like VA
Educational Objectives

At the conclusion of this activity participants should be able to:

- understand the evolving neuroscience that makes yoga an effective mind-body intervention to improve chronic pain
- summarize recent clinical studies and scientific foundations that have prompted mainstream acceptance of acupuncture
- discuss key learnings of integrating a yoga and acupuncture program into a Western Medical System.
Complementary and Alternative Medicine (CAM)

- 1991-US Congress established the Office of
  Alternative Medicine within the NIH
- History of use or origins outside of 'mainstream'
  medicine
- 2015 changed to Center for Complementary and
  Integrative Health
  - 3 categories:
    1. Natural products
    2. Mind/body practices-YOGA
    3. Other complementary approaches

Benefits of Yoga

- Well Being
- Improved Balance
- Better Sleep
- Less Pain
- Improved Energy
- Stress Management
- Improved Balance

Who is doing yoga?

- Yoga was the most commonly used complementary
  health approach among U.S. adults in 2012 (9.5
  percent) and 2017 (14.3 percent).
- Non-Hispanic white adults were more likely to
  practice yoga compared with Hispanic and non-
  Hispanic black adults.
- The use of yoga was highest among adults aged 18
  to 44 and decreased with advancing age.
Overview of Literature

- American College of Physicians-first line treatment of chronic LBP
- Growing body of clinical research studies demonstrating both physical and psychological effects of yoga
  - Bussing, 2012-meta-analysis showing positive effects for back pain, rheumatoid arthritis, headache/migraine and other pain conditions
  - Chang, et al, 2016-systematic review for chronic low back pain suggesting reduced pain and disability and improved physical and mental function
  - Neuroimaging evidence shows both structural and functional changes in the brain (van Aalst, 2020)

Yoga Practice May Improve Pain Tolerance and Alter Brain Anatomy

- People who practiced yoga had more gray matter in multiple brain regions related to pain processing, pain regulation and attention
- Able to tolerate cold pain twice as long as controls
- The more they practiced, the larger that change

Effects of Yoga on the Brain and CNS

- Yoga practice has neuroprotective effects against age-related brain degradation
- Brain is more parasympathetically driven and in positive affective state
- Reverses memory loss

Reference

Measurements

- Self reported questionnaires-bias difficult to account for
- Reduces inflammation-oxidative stress, blood glucose, blood lipids (Ross, 2010); C-reactive protein (CRP) and inflammatory cytokines-measured biomarkers (Gamer, 2016)
- Reductions in levels of salivary cortisol-indicator of activation of the HPA axis response to stress (Ross, 2010)
- Neuroimaging studies and GABA levels (Streeter, 2010)
- Heart Rate Variability (HRV)-a measure of the heart’s resiliency or ability to respond to changes in demands; measure the balance between SNS/PSN

### Autonomic Nervous System

#### Sympathetic
- Fuel the body and brain to take action
- “fight or flight”
- accelerator/gas pedal

#### Parasympathetic
- Regulates basic body functions: digestion, wound healing, sleep
- “rest and digest”
- brake

[Image of the Autonomic Nervous System]

https://www.morningsideacupuncturenyc.com/blog/acupuncture-and-the-vagus-nerve
“The Wanderer”

- Superhighway of body-longest CN, brain to rest of major organs
- Stimulate vagus nerve to trigger body's natural relaxation response
- 80% of neural fibers communicate from the body up to the brain - “gut feeling”
- Easiest way to stimulate the vagus nerve is with the breath
- Helps shift from fight/flight mode

The Polyvagal Theory

- 1994-Dr. Stephen Porges
- Autonomic NS system and social behavior
- Neurological architecture of the mind-body connection

https://www.stephenporges.com/

Yoga stimulates the Vagus Nerve

1. Postures/poses-stretching and compressing
2. Breathing-especially diaphragmatic breath
3. Vocalization-vagus nerve passes through larynx
   - Chanting, singing, humming
4. Kindness and gratitude behaviors
The BREATH is key—Diaphragmatic breath

- The breath affects:
  - neuroendocrine regulation
  - cortisol regulation
  - GABA system
  - Hypothalamic-Pituitary-Adrenal (HPA) axis regulation

Accessible Yoga—Chronic Pain

- US Culture has developed fitness focus on yoga
- Instructors not appropriately trained to modify poses/limitations
- GOAL: Find trained and experienced practitioners who can adapt yoga practice to individual and avoid injuries
Certification/regulation

• No legal regulation or third-party accreditation in US
• Yoga Alliance-volunteer registry
• International Association of Yoga Therapists (IAYT)-self-regulation for lay trained yoga therapists

HealthPartners-Yoga for Chronic Pain

• 75 participants enrolled, 32 fully completed (42.7%)
  • Average age 51.7, quarter of participants male
  • Max 15 participants, in person classes
  • 2 hours/week over 8 weeks
  • Received both written and online education “OM work”
  • Collected weekly practice logs to track engagement
  • Average pain interference reduced 4.7 to 3.9 and average pain intensity 5.5 to 4.8
  • 84.8% reported feeling “a little better” or “better”
  • Likelihood of continuing yoga-8.3 (0-10)

HealthPartners-Yoga for Chronic Pain-2.0

• Minnesota Department of Health grant for 2020-2022
  • One of 5 grant recipients focused on non-opioid treatment of pain
  • Creating a self-paced, virtual yoga program that is divided into 7 modules, with 3 parts (education, demonstration and practice-2 levels).
  • Reach a broader and more diverse audience
  • Collect data via REDCap database
  • Option to connect 1:1 or within small groups to develop connection/community
Next Steps…

- 2011 Relieving Pain in America: A Blueprint for Transforming…
  - Biopsychosocial (BPS) model—most effective and cost-effective way to address pain
- Majority of health problems in US are preventable and can improve with health behavior change—ADHERENCE and MOTIVATION
- Create sustainable habits—Dr. BJ Fogg, Wendy Wood, PhD
- Less “fix me” and more “self-care”
- Yoga-active participation and self-reflection help empower people

Find a Yoga Therapist Near You

To find IAYT-certified yoga therapists (IAYTs) by area, enter a city and/or state/province. You can also search for a specific person.

Conclusions

- Increasing volume of literature showing improvement of chronic pain in those who practice yoga
- Toning the Vagus nerve is a key result of practicing yoga
- The yoga community is slowly developing ways to integrate into the western medical system
- The more one practices, the better benefit they will achieve
- Finding well-trained yoga practitioners is key for those with chronic pain
References:

- Villeneuve x 2

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Acupuncture: ancient practice becomes mainstream

Miles Belgrade, MD
Minneapolis VA Comprehensive Pain Center
Objectives

- Summarize the history and practice of acupuncture briefly
- Outline some of the modern basic and clinical research evidence that support acupuncture practice
- Identify acupuncture as an accepted practice by health care systems like VHA

Acupuncture History
Acupuncture Technique

- Needles
- Insertion
- Point location
- Stimulation
- Point selection
- Duration & frequency

Acupuncture Point Selection

- Local points treat local disorders
- Tender points (Ashi points)
- Points on a meridian traversing the problem region
- Six important distal points treat the head, neck, and trunk
- Certain points have general effects: e.g. sedation, tonification, homeostasis
- Ear regions correspond with the body via a homunculus-like projection

Risks of Acupuncture

- Common
  - Discomfort 40%
  - Bruising 2%
  - Bleeding- minimal but common
  - Fainting 1%
- Uncommon
  - Infection
  - Pneumothorax
  - Retained needle fragment
  - Peripheral nerve injury
  - Spinal cord injury
  - Miscarriage
Epidural Hematoma After Acupuncture

December 14, 2016

RESEARCH ARTICLE
Publication Trends in Acupuncture Research: A 20-Year Bibliometric Analysis Based on PubMed

Yao Mo, Chuan Qin, Zhiwei Zhi, Guo Guo, and Peter M. Wijman

Figure 1: Annual publication trend of acupuncture-related topics

Figure 2: Distribution of article types and journals

Figure 3: Citation analysis of key acupuncture journals
Therapeutics
Review: Acupuncture reduces migraine frequency more than usual care, sham acupuncture, or prophylactic drugs

Cochrane Library
Cochrane Database of Systematic Reviews

Acupuncture for the prevention of episodic migraine (Review)

22 trials 4895 participants
Acupuncture > No Acupuncture
Acupuncture > Sham Acupuncture
Acupuncture > Prophylactic Drug Therapy at 3 months
Moderate quality evidence
Authors' conclusions The available results suggest that acupuncture is effective for treating frequent episodic or chronic tension-type headaches, but further trials - particularly comparing acupuncture with other treatment options - are needed.

Moderate-quality evidence suggests that acupuncture relieves pain better than sham acupuncture, as measured at completion of treatment and at short-term follow-up, and that those who received acupuncture report less pain and disability at short-term follow-up than those on a wait-list. Moderate-quality evidence also indicates that acupuncture is more effective than inactive treatment for relieving pain at short-term follow-up.

Studies w/o sham acup  
Studies with sham acup

Acupuncture exerts its effects at every level of the nervous system:

At The Tissue Level

At the primary nociceptor
At the autonomic nervous system

In the brain
Background and Policy: VA Acupuncture is one of the complementary and integrative health (CIH) approaches within the VA Health System. VA Directive 1137 – Provision of Complementary and Integrative Health Services – was published in May 2017. This directive allows acupuncture care to be covered by the Veteran’s medical benefits package when clinically necessary, as determined by the patient’s care team. In February 2018, a Qualification Standard was published that permitted licensed acupuncturists to be hired to provide acupuncture care at VA Medical Centers (VAMC).

In fiscal year 2017, more than 185,000 acupuncture treatments were provided to patients at VAMC medical centers. In 2017, more than 47,000 veterans were authorized to receive acupuncture care outside VAMC medical centers.
Conclusions

• Acupuncture effects are exerted throughout the pain transmission and pain modulation pathways
• Acupuncture has a clinical evidence-base that gets stronger and broader every decade
• Acupuncture for chronic pain is embraced by clinicians and health care systems and, of course by patients
• Acupuncture has been marginalized by the payers in the health care industry
• The poor reimbursement and exclusion of acupuncture services threatens acupuncture’s integration in American pain medicine

References

PCSS Mentoring Program

- PCSS Mentor Program is designed to offer general information to clinicians about evidence-based clinical practices in prescribing medications for opioid addiction.
- PCSS Mentors are a national network of providers with expertise in addictions, pain, evidence-based treatment including medication-assisted treatment.
- 3-tiered approach allows every mentor/mentee relationship to be unique and catered to the specific needs of the mentee.
- No cost.

For more information visit: pcssnow.org/mentoring

PCSS Discussion Forum

Have a clinical question?

PCSS is a collaborative effort led by the American Academy of Addiction Psychiatry (AAAP) in partnership with:

| American Academy of Family Physicians | American Psychiatric Association |
| American Academy of Neurology | American Society of Addiction Medicine |
| Addiction Technology Transfer Center | American Society of Pain Management Addiction Medicine |
| American Academy of Pain Medicine | Association for Medical Education and Research in Substance Abuse |
| American Academy of Pediatrics | International Nurses Society on Addictions |
| American College of Emergency Physicians | American Psychiatric Nurses Association |
| American College of Physicians | National Association of Community Health Centers |
| American Dental Association | National Association of Drug Court Professionals |
| American Medical Association | Southeastern Consortium for Substance Abuse Training |
| American Osteopathic Academy of Addiction Medicine | |
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