Non-Pharmacological Pain Management

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Deputy Director, NCCIH
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NCCIH Mission

Through rigorous scientific research:

- Determine usefulness and safety of complementary interventions
- Investigate their roles in improving health and health care
2016 NCCIH Strategic Plan

- Objective 1: Advance Fundamental Science and Methods Development
- Objective 2: Improve Care for Hard-to-Manage Symptoms
- Objective 3: Foster Health Promotion & Disease Prevention
- Objective 4: Enhance the Complementary & Integrative Health Research Workforce
- Objective 5: Disseminate Objective Evidence-based Information on CIH Interventions
Non-Pharmacologic Management of Pain: A Top Scientific Priority

- Elucidate targets & pathways of CIH approaches.
- Research on mechanisms & biophysical characteristics of noninvasive neuromodulation (e.g., TCS and ultrasound).
- Examine interactions of non-pharmacologic and pharmacologic interventions for potential safe reduction of opioids and other analgesics.
- Develop and validate objective pain measures for complementary and integrative health approaches in the treatment of pain.
- Study nonspecific effects (e.g., expectancy, context, placebo) to enhance pain management.
- Conduct large, pragmatic studies of pain management addressing clinical or health systems questions.
These rates show an unmet need for managing chronic pain with nondrug approaches among U.S. military personnel and veterans.

**Chronic pain** (more than 3 months)
- General public estimates: 26%
- U.S. military after combat deployment: 44%

**Opioid use** (in the past month)
- General public estimates: 4%
- U.S. military after combat deployment: 15%

- Approximately $21.7 million over 5 years
- 13 grant awards
  - Pilot and Feasibility Studies (6)
  - Clinical Trial/Interventional Studies (3)
  - Health Services Studies (4)


- “…assess the feasibility of undertaking one or more large-scale studies in cooperation with the VA and the DoD/DHA to answer important policy and patient care questions about the use of integrative approaches in pain management.”
Sought to clarify the following:

• Long-term effectiveness of opioids for treating chronic pain
• Potential risks of opioid treatment in various patient populations
• Effects of different opioid management strategies on outcomes related to addiction, abuse, misuse, pain, and quality of life
• Effectiveness of risk mitigation strategies for opioid treatment
• Future research needs and priorities to improve the treatment of pain with opioids

• Conclusion: “Evidence is insufficient to determine the effectiveness of long-term opioid therapy for improving chronic pain and function. Evidence supports a dose-dependent risk for serious harms.”*

Check that non-opioid therapies tried and optimized

- Non-opioid medications
- Physical treatments
- Behavioral treatment
- Procedures
Adult Use of Complementary Approaches for Selected Conditions: 2007

- Back pain: 14.3 million
- Neck pain: 5 million
- Joint pain: 4.5 million

Barnes et al., 2008

Research suggests that mindfulness meditation—paying close attention to the breath and body movements—reduces stress and produces a sense of wellbeing.

Beyond Opioids: Mind and Body Practices
A Personal Story

When asked recently by her doctor, “How would you rate your daily pain,” Diana Gray answered quickly, “What pain?” She breaks into laughter just talking about the exchange.

At 73, Gray has battled chronic pain—that is, pain that lasts a long time and can be hard to treat—for nearly 20 years. She was first diagnosed with osteoarthritis of the hip after a car accident left her feeling really old at age 55. A retired student affairs administrator, Gray longed for the days when she walked a mile to work every morning.

Research suggests that mindfulness meditation—paying close attention to the breath and body movements—reduces stress and produces a sense of wellbeing.


Recent research shows that some non-drug approaches—including mind and body practices such as tai chi and mindfulness meditation—can help some people with chronic pain feel better.

For example, a study funded by the National Center for Complementary and Integrative Health (NCCIH) found that tai chi, a traditional Chinese practice that combines meditation with deep breathing, relaxation, and gentle movements, was as effective as physical therapy. Tai chi may also lessen pain in people with fibromyalgia, a disorder that causes widespread pain, fatigue, and other symptoms.

Four mornings each week, Gray walks to a local park near her house to a tai chi class. On the other three mornings each week, she practices tai chi at home. She says she feels younger today than she did 10 years ago. “I was lucky that I didn’t like the way opioids made me feel,” Gray says. “Once the pain moved into my knees, it forced me to find another way to treat my pain.”

If, like Gray, you have chronic pain, you may want to talk with your health care provider about adding a mind and body approach to your treatment plan.

Find Out More

- NIH Pain Consortium: painconsortium.nih.gov
- U.S. Health and Human Services: www.hhs.gov/opioids/
- National Institute of Drug Abuse: www.drugabuse.gov/drugs-abuse/opioids
- NIH Pathways to Prevention: prevention.nih.gov/programs-events/pathways-to-prevention
- National Center for Complementary and Integrative Health: nccih.nih.gov/health/pain
Pain, Emotions and Cognition

- Emotions and cognition interact in modulating pain
- Emotional state modulates pain sensation
- Cognitive states such as attention and memory can either increase or decrease pain
- Mind–body therapies e.g. meditation, yoga and cognitive behavioral therapy may be useful in modulating emotional and cognitive control of pain

# Effectiveness of Mindfulness-Based Stress Reduction vs Cognitive Behavioral Therapy or Usual Care in Adults With Chronic Low Back Pain

## Percentage of Participants with Clinically Meaningful Improvement by Treatment Group

| Follow-up Week | Usual Care | Mindfulness-Based Stress Reduction | Cognitive Behavioral Therapy | P Value for Omnibus<br>
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<td>Roland Disability Questionnaire Results</td>
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<tr>
<td>4</td>
<td>27.3 (20.3-36.6)</td>
<td>34.5 (26.8-44.3)</td>
<td>24.7 (18.1-33.8)</td>
<td>.23</td>
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<td>8</td>
<td>35.4 (27.6-45.2)</td>
<td>47.4 (38.9-57.6)</td>
<td>51.9 (43.6-61.7)</td>
<td>.04&lt;sup&gt;d&lt;/sup&gt;</td>
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<tr>
<td>26</td>
<td>44.1 (35.9-54.2)</td>
<td>60.5 (52.0-70.3)</td>
<td>57.7 (49.2-67.6)</td>
<td>.04&lt;sup&gt;d&lt;/sup&gt;</td>
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<tr>
<td>52</td>
<td>48.6 (40.3-58.6)</td>
<td>68.6 (60.3-78.1)</td>
<td>58.8 (50.6-68.4)</td>
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<td>Pain Bothersomeness Results</td>
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<td>4</td>
<td>20.6 (14.6-28.9)</td>
<td>19.1 (13.3-27.4)</td>
<td>21.7 (15.3-30.6)</td>
<td>.88</td>
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<td>24.7 (18.1-33.6)</td>
<td>36.1 (28.3-46.0)</td>
<td>33.8 (26.5-43.2)</td>
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<td>31.0 (23.8-40.3)</td>
<td>48.5 (40.3-58.3)</td>
<td>39.6 (31.7-49.5)</td>
<td>.02&lt;sup&gt;d&lt;/sup&gt;</td>
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An Integrative Approach to Chronic Low Back Pain CME

Medscape Multispecialty

From Medscape Education Public Health & Prevention

An Integrative Approach to Chronic Low Back Pain CME/CE

Josephine Briggs, MD
CME/CE Released: 3/2/2016, Valid for credit through 3/2/2017

CME INFORMATION

This activity is intended for primary care physicians, neurologists, and orthopedists & orthopedic surgeons.

The goal of this activity is to review the evidence for safety and efficacy of complementary and integrative health approaches for treating chronic low back pain.

Upon completion of this activity, participants will be able to:

1. Identify evidence in support of the clinical efficacy of complementary therapies for the treatment of chronic low-back pain

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Disclosure: Josephine Briggs, MD, has disclosed no relevant financial relationships.

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Dr Josephine Briggs does not intend to discuss investigational drugs, mechanical devices, biologics, or diagnostics not approved by the FDA for use in the United States.
Summary: Looking at both positive and negative trials.

- Acupuncture and yoga for back pain
- Acupuncture and tai chi for osteoarthritis of the knee
- Massage therapy for neck
- Relaxation techniques for severe headaches and migraine.

"This is only a placebo, but trust me, it works!"
### Osteoarthritis

- **No Acupuncture**: 0.57 (0.50-0.64)
- **Sham**: 0.16 (0.07-0.25)

### Chronic Headache

- **No Acupuncture**: 0.42 (0.37-0.46)
- **Sham**: 0.15 (0.07-0.24)

### Musculoskeletal Pain

- **No Acupuncture**: 0.55 (0.51-0.58)
- **Sham**: 0.23 (0.13-0.33)

Pain Tolerance Positively Correlated with Gray Matter Volumes & Intrainsular Connectivity

Adapted from C. Villemure, M. Čeko, V. Cotton & C. Bushnell Cerebral Cortex 2013.