Update in Alternative and Complementary Medicine
CACP February 2018

BY:
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The Original Rocky Mountain High: Exercise and meditation for pain management
Single Use Needles as a Solution for the Opioid Crisis: Acupuncture and other integrative strategies
Crack vs Crack: Chiropractic vs hard drugs
Integrative Pain Management
Non-medication approaches

Lisa W. Corbin, MD FACP
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Objectives

1) Describe an integrative approach for chronic pain management
2) Discuss data behind integrative options for back pain
3) List reliable resources for finding more information on integrative therapies
4) Counsel patients on practical matters related to integrative therapies: risks, costs, referrals

No disclosures.
Key Points

• Chronic pain is the disease and represents abnormal function of the CNS

• Non-medication treatment involves patient education, graded exercise, regular sleep, behavior therapy, and some complementary therapies
Mr. Jones

• 40 yo, healthy, strained back moving furniture 3 months ago. No red flags.
• Exam with palpable tenderness L lumbar area, SLR neg and neuro normal
• Has tried NSAIDs without success
• Asks your opinion about fish oil and chiropractic
Mrs. Jones

- 38 yo, healthy, diagnosed with fibromyalgia 4 years ago
- Has tried medications with prior PCP (gabapentin), gained 50#. Thinking about disability because working in the bank is too taxing.
- Exam with tender points positive otherwise normal
- Asks your opinion about fish oil and chiropractic
What do you tell the Jones?

• I have no idea
• Chiropractic can be useful for pain management
• Fish oil can be useful for pain management
• Other CAM therapies and lifestyle approaches may be useful for pain
• I know how to help you find a good chiropractor
• I can tell you how to find a good quality supplement
Alternative Medicine
Complementary Medicine
“CAM”
Lifestyle medicine
- Sleep
- Exercise
- Stress management
- Nutrition
An Integrative Approach

1. Patient education / engagement

2. Lifestyle / self-care
   – Sleep
   – Exercise
   – Mind / body techniques
   – (Nutrition)

3. CAM therapies
   a. Deter from harmful therapies
   b. Discuss safe, plausible CAM therapies
      – Supplements               – Acupuncture
      – Acupuncture               – Massage

4. (non-narcotic medications)

5. Return care of the patient to the patient
Noninvasive Treatments for Acute, Subacute, and Chronic Low Back Pain: A Clinical Practice Guideline From the American College of Physicians

Amir Qaseem, MD, PhD, MHA; Timothy J. Wilt, MD, MPH; Robert M. McLean, MD; and Mary Ann Forciea, MD; for the Clinical Guidelines Committee of the American College of Physicians*

Description: The American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on noninvasive treatment of low back pain.

Methods: Using the ACP grading system, the committee based these recommendations on a systematic review of randomized, controlled trials and systematic reviews published through April 2015 on noninvasive pharmacologic and nonpharmacologic treatments for low back pain. Updated searches were performed through November 2016. Clinical outcomes evaluated included reduction or elimination of low back pain, improvement in back-specific and overall function, improvement in health-related quality of life, reduction in work disability and return to work, global improvement, number of back pain episodes or time between episodes, patient satisfaction, and adverse effects.

Target Audience and Patient Population: The target audience for this guideline includes all clinicians, and the target patient population includes adults with acute, subacute, or chronic low back pain.

Recommendation 1: Given that most patients with acute or subacute low back pain improve over time regardless of treatment, clinicians and patients should select nonpharmacologic treatment with superficial heat (moderate-quality evidence), massage, acupuncture, or spinal manipulation (low-quality evidence). If pharmacologic treatment is desired, clinicians and patients should select nonsteroidal anti-inflammatory drugs or skeletal muscle relaxants (moderate-quality evidence). (Grade: strong recommendation)

Recommendation 2: For patients with chronic low back pain, clinicians and patients should initially select nonpharmacologic treatment with exercise, multidisciplinary rehabilitation, acupuncture, mindfulness-based stress reduction (moderate-quality evidence), tai chi, yoga, motor control exercise, progressive relaxation, electromyography biofeedback, low-level laser therapy, operant therapy, cognitive behavioral therapy, or spinal manipulation (low-quality evidence). (Grade: strong recommendation)

Recommendation 3: In patients with chronic low back pain who have had an inadequate response to nonpharmacologic therapy, clinicians and patients should consider pharmacologic treatment with nonsteroidal anti-inflammatory drugs as first-line therapy, or tramadol or duloxetine as second-line therapy. Clinicians should only consider opioids as an option in patients who have failed the aforementioned treatments and only if the potential benefits outweigh the risks for individual patients and after a discussion of known risks and realistic benefits with patients. (Grade: weak recommendation, moderate-quality evidence)

For author affiliations, see end of text.
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Chronic Pain – fun facts

• Chronic pain – 20% of adults (62% of 75+)
• More people affected than by asthma or diabetes
• 4 of the top 10 most disabling conditions
• Little research – MeSH term added in 2012

Cochrane 2017
What is Chronic Pain?

Normal

Damage threshold

Pain threshold

Chronic pain
Step 2: Patient Education

• Chronic pain is an illness
• Goal: symptom reduction, increased function
• Better prognosis with
  – Increased sense of control over pain
  – Beliefs that one isn’t disabled and that pain isn’t a sign of damage
  – Ability to seek help from others and pace activities
Welcome

The Chronic Pain and Fatigue Research Center is a multidisciplinary center committed to improving the understanding and management of disorders distinguished by symptoms of chronic pain and fatigue such as Fibromyalgia. While we are part of the Department of Anesthesiology in the University of Michigan Medical School, we maintain strong ties to many other departments across the UM Health System, including the Department of Urology, Department of Obstetrics and Gynecology, Department of Family Medicine, Department of Internal Medicine, UM Dental School, Department of Neurology, as well as the VA/Ann Arbor Healthcare System.

We are dedicated to providing current, evidence-based information to patients, their family and friends, and health care providers. Our research focuses on exploring the underlying neurobiologic mechanisms that drive these disorders, as well as testing new and existing interventions. Our goals are to advance the understanding and treatment of these illnesses, and to educate the public and the medical and scientific community.

Step 1:
Patient Education
Step 3: Lifestyle / Self Care

- Sleep
- Exercise
- Stress
Improving Sleep

• Behavioral approaches
• Exercise
• CBT
• Acupuncture
• Massage
• Supplements
• Mind/body techniques
• (Medications)

www.sleepeducation.org
Graded Exercise

- Multiple trials: walking programs, pool-based
- Cochrane review for fibromyalgia
  - 11% decrease in pain vs 7% increase
  - 28% increase in pressure pain threshold vs 7% decrease
2017 Cochrane review of Cochrane reviews (!)

- Identified 21 Cochrane reviews exploring exercise for various chronic pain conditions
- Interventions included aerobic, strength, flexibility, ROM, core or balance training, yoga, Pilates, and tai chi
- No harm; improved pain scores (12/15), physical function (14/21)

Geneen et al. Cochrane Database Syst Rev 2017 Apr 24
Exercise – Get FIT

• **F**requency
  – Exercise every day

• **I**ntensity
  – Increase difficulty

• **T**ime
  – 5 minutes daily, increase by 1 minute daily each week; goal 30 minutes / day

• Earlier in day best for sleep benefit
• Twice daily may be more beneficial for some
Mind / Body

• Stress intensifies perception of pain
  – Sympathetic nervous system / fight-flight-freeze
• Depression intensifies perception of pain
• Stress interferes with sleep
• Treatment of underlying depression helps, but depression isn’t a cause of pain
Mind-body Therapies

- Cognitive Behavioral Therapy
- Relaxation techniques
- Breathing techniques
- Stress management
- Biofeedback / heart rate variability biofeedback
- Mindfulness / Meditation
- Imagery / visualization
Mind-body Therapies

- Cognitive Behavioral Therapy
- Relaxation techniques
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- Stress management
- Biofeedback / heart rate variability biofeedback
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- Imagery / visualization
CBT for Pain

• 701 British LBP: group CBT x 6 vs no additional, improved disability scores and pain scores at 12 months, cost for QALY low

• 16 “high catastrophizing” FM patients – CBT vs UC; reduced catastrophizing and pain and changes seen on functional brain scanning

Finding CBT

PsychologyToday.com

Workbook with CBT approach (Caudill)
Mindfulness / MBSR for LBP

• Group Health Seattle
  – 342 adults: MBSR/yoga vs CBT vs usual care
  – 8 weekly 2 hour sessions (treatment groups)
  – Improved RDQ scores at 26 weeks:
    61% MBSR / 58% CBT / 44% UC
  – Improved pain bothersomeness at 26 weeks:
    44% MBSR / 45% CBT / 27% UC

• University of Pittsburg
  – 282 older adults: MBSR vs usual care
  – 8 weekly sessions then 6 monthly sessions
  – At 6 months, participants with >30% reduction in pain = 44.4% MBSR vs 25% control

Step 3: CAM Therapies

Helpful CAM Therapies

- Supplements
- Massage therapy
- Acupuncture
- Chiropractic

"Snap out of it."
Herbs and Supplements

• Three types of medicines:
  – Prescription (Rx)
  – Over-the-counter (OTC)
  – Dietary Supplements

• Unlike Rx and OTC, supplements:
  – Are not required to prove safety or efficacy
    • Burden of proof on FDA to show unsafe
  – Are not required to enforce quality control
    • GMP required but burden on FDA
  – Can vary in concentration of ingredients
Supplements

• Natural ≠ safe
• Watch for interactions
• Use good resources for information
• Advise use of well-labeled brands
  – Avoid combination products, MLM
• Ask all patients about use
Methysulfonylmethane

Scientific Name
Methysulfonylmethane, Dimethyl sulfoxide.

Background
Methysulfonylmethane (MSM) is a naturally occurring compound found in green plants such as horsetail (Equisetum arvense); certain species of algae; fruits; vegetables; grains; and both bovine and human adrenal glands, milk, and urine (8574). MSM is an odorless metabolite of dimethylsulfoxide (DMSO) (10625,4790). In the body, about 15% of ingested DMSO is converted to MSM. Commercially, MSM is produced by combining DMSO and hydrogen peroxide to produce MSM and water (14431). MSM has been popularized by the book, The Miracle of MSM: The Natural Solution for Pain (8573). However, there is little published scientific research to support its use. Contrary to some MSM promotional literature, there is no Recommended Dietary Allowance (RDA) for sulfur or MSM. Sulfur deficiency has not been described in the medical literature.

Also known as: Crystalline DMSO, Dimethyl Sulfone MSM, Dimethylosulfone, DMSO2, Methyl Sulfone, Methyl Sulfanyl Methane, Methyl Sulphonyl Methane, Méthyle Sulfonyl Méthane, Méthyle Sulphone Méthane, Méthylsulphonymethane, Méthylsulfonyméthane, Metilsulfonilmentano, MSM, Sulfone de Diméthyle MSM, Sulfone de Méthyle, Sulfonyl Sulfur. 

CAUTION: See separate listing for DMSO (Dimethylsulfoxide).
Safe Supplements for Pain

- Glucosamine sulfate
  - Possibly effective for OA of the knee, mixed for OA of the back (1500 mg glucosamine daily)
- Fish oil (omega 3 fatty acids)
  - Possibly effective for dysmenorrhea (0.5-2.5 gm daily), RA (1-10 gm daily)
  - Possibly ineffective for OA, migraines
- MSM
  - Possibly effective for OA, 1.5 to 6 grams divided TID
- S-adenosyl-L- methionine (SAMe)
  - Likely effective for OA (400 mg bid)
  - Possibly effective for FM (400 mg bid)
Evidence-Based Evaluation of Complementary Health Approaches for Pain Management in the United States

Richard L. Nahin, PhD, MPH; Robin Boineau, MD, MA; Partap S. Khalsa, DC, PhD; Barbara J. Stussman, BA; and Wendy J. Weber, ND, PhD, MPH

Abstract

Although most pain is acute and resolves within a few days or weeks, millions of Americans have persistent or recurring pain that may become chronic and debilitating. Medications may provide only partial relief from this chronic pain and can be associated with unwanted effects. As a result, many individuals turn to complementary health approaches as part of their pain management strategy. This article examines the clinical trial evidence for the efficacy and safety of several specific approaches—acupuncture, manipulation, massage therapy, relaxation techniques including meditation, selected natural product supplements (chondroitin, glucosamine, methylsulfonylmethane, S-adenosylmethionine), tai chi, and yoga—as used to manage chronic pain and related disability associated with back pain, fibromyalgia, osteoarthritis, neck pain, and severe headaches or migraines.
Massage Therapy

Low back pain: 4+ / 1-
1+ / 0 - (vs sham)
3+ / 1 - (vs UC/wait)

OA knee: 2+
NA
2+ / 0-

Neck pain: 5+
2+ / 0-
3+ / 0-

Headaches: 2+
1+ / 0-
1+ / 0-

Massage for FM

- Meta-analysis and review
- 9 trials met criteria, n=404
- No benefit overall with 6 trials unless divided into < or > 5 weeks of MT
- Did help depression, anxiety scores

Acupuncture

Low back pain: 3+ / 2- 1+ / 2 - (vs sham) 2+ (vs UC/wait)

Fibromyalgia: 1+ / 3- 1+ / 3- NA

OA knee: 3+ / 3- 1+ / 3- 2+

Headaches: 1+ NA 1+

• N=66 chronic migraine patients
• Acupuncture (24 sessions over 12 weeks) vs topiramate (4 week titration / 8 week maintenance)
• AE: 6% acupuncture group, 66% topiramate group

Manipulation

Low back pain: 13+ / 9-  
7+ / 4 - (vs sham)  
6+ / 5 - (vs UC/wait)

Neck pain: 1-  
1-  
NA

Headaches: 1+  
NA  
1+

Background
Safety
Cost
• Acute LBP n=91; active military age 18-35
• 4 sessions / 4 weeks of standard care +/- CMT

**Table 3. Adjusted Mean Differences for Standard Medical Care Versus Standard Medical Care Plus CMT on Primary Outcome Variables by Time Since Randomization**

<table>
<thead>
<tr>
<th></th>
<th>Standard Medical Care</th>
<th>Standard Medical Care + CMT</th>
<th>Mean Difference*</th>
<th>95% CI*</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMQ (0–24)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>12.9</td>
<td>8.9</td>
<td>3.9</td>
<td>1.8, 6.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Week 4</td>
<td>12.0</td>
<td>8.0</td>
<td>4.0</td>
<td>1.3, 6.7</td>
<td>0.004</td>
</tr>
<tr>
<td>NRS (0–10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>6.1</td>
<td>3.9</td>
<td>2.2</td>
<td>1.2, 3.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Week 4</td>
<td>5.2</td>
<td>3.9</td>
<td>1.2</td>
<td>0.2, 2.3</td>
<td>0.02</td>
</tr>
<tr>
<td>BPFS (0–60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 2</td>
<td>32.9</td>
<td>42.9</td>
<td>-10.0</td>
<td>-14.6, -5.5</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Week 4</td>
<td>35.3</td>
<td>43.0</td>
<td>-7.7</td>
<td>-12.9, -2.6</td>
<td>0.004</td>
</tr>
</tbody>
</table>

*Estimated effects and 95% confidence intervals from linear mixed-effects models fitted with treatment group, visit (categorical), treatment group x visit interaction and general covariance structures and adjusted for age, sex, prescreen NRS, and baseline value of the respective outcome variable.

CMT indicates chiropractic manipulative therapy; NRS, numerical pain rating scale; RMQ, Roland-Morris Disability Questionnaire; BPFS, back pain functional scale.

**Table 4. Participant Satisfaction With Care**

<table>
<thead>
<tr>
<th>Assessment Visit</th>
<th>Standard Medical Care</th>
<th>Standard Medical Care + CMT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction with overall results of care (0–10), week 2, mean (SD)</td>
<td>4.5 (2.9)</td>
<td>8.9 (1.2)</td>
</tr>
<tr>
<td>Satisfaction with overall results of care (0–10), week 4, mean (SD)</td>
<td>5.4 (2.9)</td>
<td>8.9 (1.5)</td>
</tr>
</tbody>
</table>

CMT indicates chiropractic manipulative therapy.
Low back pain: 4+ / 1-
4+ (vs sham)
1+ (vs UC/wait)

OA knee: 1+
1+
NA

Fibromyalgia: 1+
NA
1+
Yoga for LBP

• N=320, yoga vs PT vs education
• 12 weekly yoga classes vs 15 weekly PT vs educational materials; maintenance of drop in yoga or PT boosters
• Over 30% reduction in RDQ: 60% yoga, 42% PT, 14% education
• Over 30% reduction in pain: 44% yoga, 48% PT, 15% education
• Yoga / PT stopped medications > education

Bonus – Tai Chi

- Tai Chi vs PT for OA knee, Boston
- N=204; avg 60 years, 70% women, 53% white
- 2 x 60 min tai chi for 12 weeks vs 2 x 30 min PT for 6 weeks / home exercise x 6 weeks

Tai Chi vs PT for OA knee

- N = 204; avg age 60 years, 70% women, 53% white
- 2 x 60 min tai chi for 12 weeks vs 2 x 30 min PT for 6 weeks / home exercise x 6 weeks

Graphs showing outcomes:
- WOMAC Pain Score
- WOMAC Function Score
- Patient Global Assessment Score
- SF-36 Physical Component Score
- SF-36 Mental Component Score
- Beck Depression Inventory-II Score
- Arthritis Self-Efficacy Scale Score
- 6-Minute Walk Test
- 20-Meter Walk Test

Significance levels:
- P = 0.22
- P = 0.160
- P = 0.25
- P = 0.034
- P = 0.59
- P = 0.049
- P = 0.42
- P = 0.97
- P = 0.194
Table 3. Changes in Use of NSAIDs and Analgesics*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio (95% CI) Compared With Baseline</th>
<th>Odds Ratio (95% CI) for Between-Group Difference</th>
<th>P Value†</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tai Chi (n = 106)</td>
<td>Physical Therapy (n = 98)</td>
<td></td>
</tr>
<tr>
<td>NSAIDs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Week 12</td>
<td>0.39 (0.18–0.87)</td>
<td>0.54 (0.24–1.21)</td>
<td>0.73 (0.23–2.26)</td>
</tr>
<tr>
<td>Week 24</td>
<td>0.17 (0.07–0.40)</td>
<td>0.61 (0.26–1.42)</td>
<td>0.27 (0.08–0.91)</td>
</tr>
<tr>
<td>Week 52</td>
<td>0.39 (0.17–0.92)</td>
<td>0.75 (0.32–1.77)</td>
<td>0.52 (0.16–1.74)</td>
</tr>
<tr>
<td>Analgesics</td>
<td></td>
<td></td>
<td>0.179</td>
</tr>
<tr>
<td>Week 12</td>
<td>0.51 (0.21–1.25)</td>
<td>0.45 (0.17–1.21)</td>
<td>1.14 (0.30–4.31)</td>
</tr>
<tr>
<td>Week 24</td>
<td>0.42 (0.17–1.05)</td>
<td>0.65 (0.24–1.76)</td>
<td>0.64 (0.16–2.52)</td>
</tr>
<tr>
<td>Week 52</td>
<td>0.22 (0.08–0.63)</td>
<td>1.24 (0.47–3.26)</td>
<td>0.18 (0.04–0.75)</td>
</tr>
</tbody>
</table>

NSAID = nonsteroidal anti-inflammatory drug.
* Odds ratios and 95% CIs were estimated from the repeated-measures analysis. Boldface values indicate statistically significant differences between groups. Results are unadjusted for covariates.
† For the interaction of treatment group and time.

- Both groups decreased analgesic use vs baseline
- Benefit maintained at 52 weeks
Integrative Treatment Summary

Step 1: Educate / engage
Step 2: Self care / lifestyle
  – Begin exercise program
  – Refer for CBT
(Step 3: Non-narcotic medications)
Step 4: Consider CAM therapies
Step 4
  – Referral to specialist
What do you tell the Jones?

• I have no idea
• Chiropractic can be useful for pain management
• Fish oil can be useful for pain management
• Other CAM therapies and lifestyle approaches may be useful for pain
• I know how to help you find a good chiropractor
• I can tell you how to find a good quality supplement
Key Points

• Chronic pain is a pathophysiological / neurochemically-based illness
• Non-medication treatment involves patient education, graded exercise, regular sleep, behavior therapy, and consideration of CAM therapies
“Be open minded, but not so open minded that your brains fall out”
Internet resources

General CAM resources:
Online learning modules: www.csh.umn.edu/modules/index.html (slightly out of date)
Online modules and patient handouts: www.fammed.wisc.edu/integrative/modules
National Center for Complementary / Alternative Medicine: nccam.nih.gov
Health Science Library’s Strauss-Wisneski Complementary and Indigenous Medicine Collection – the website has links to other resources and journals and books held in the collection: http://hslibrary.ucdenver.edu/strauss

Herbal / Supplement resources:
USP Dietary Supplement Verification Program
  www.usp.org/USPVerified/dietarySupplements
Natural Medicines Comprehensive DB: link from HSL
Micromedex: link from UCH home page
NIH information on supplements: http://ods.od.nih.gov/
Acupuncture
American Academy of Medical Acupuncture: www.medicalacupuncture.org

Massage
American Massage Therapy Association: www.amtamassage.org
Massage research database: http://www6.miami.edu/touch-research/index.html

Chiropractic
American Chiropractic Association: http://www.acatoday.org/

Naturopathy
American Association of Naturopathic Physicians: www.naturopathic.org