

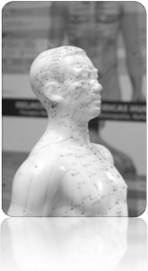
Overview of Acupuncture (Part I)

David D. Wang, Ph.D., L.Ac
Dipl.Ac, Dipl.C.H. Dipl.A.B.T. (NCCAOM)
Clinical Assistant Professor
Department of Family Medicine
OSU Center for Integrative Health
The Ohio State University Wexner Medical Center

MedNet21
Center for Continuing Medical Education

THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

- ### Objectives
- The concept of acupuncture
 - The forms and diversities of acupuncture
 - The main conditions acupuncture may help
 - The steps of acupuncture procedure
 - What happens during acupuncture treatment
 - What a patient can expect during and afterwards
 - The safety of acupuncture
 - The contraindications of acupuncture



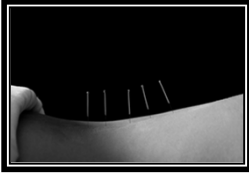
Acupuncture

- an essential part of Chinese medicine with a continuous clinical history of over 3,000 years
- the gentle insertion of hair-fine needles into the skin at specific points to promote health and combat diseases
- Acupuncture includes body acupuncture, micro-acupuncture (auricular acupuncture, scalp acupuncture), etc.
- used in conjunction with the needles during an acupuncture treatment include: moxibustion, electrical stimulation, TDP lamp, cupping, gua sha, laser stimulation, and more

Acupuncture in Chinese:
针灸 (Zhen Jiu) = Acupuncture + Moxibustion

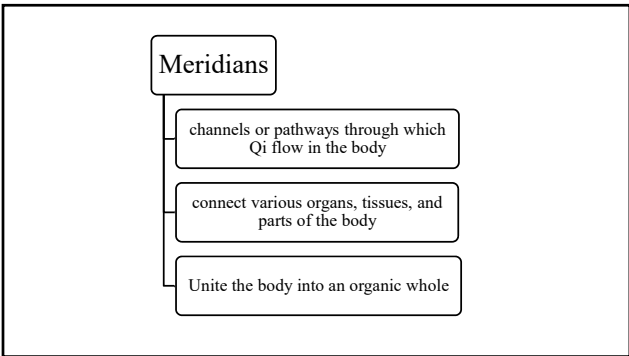
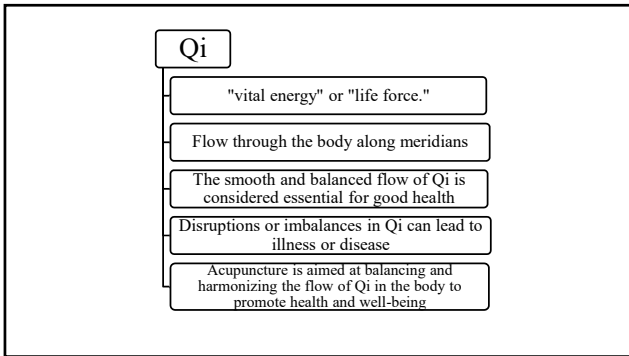
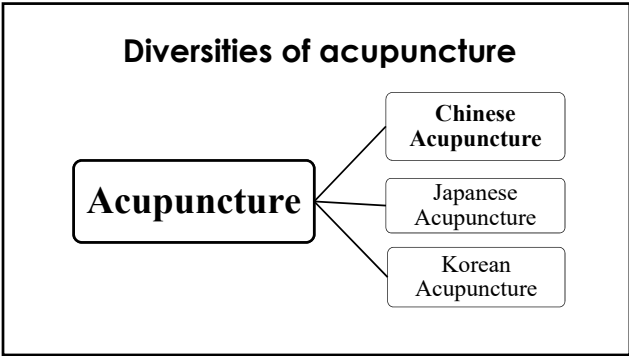
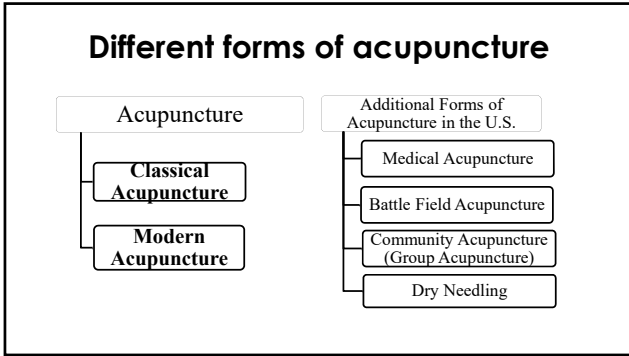
Acupuncture Systems

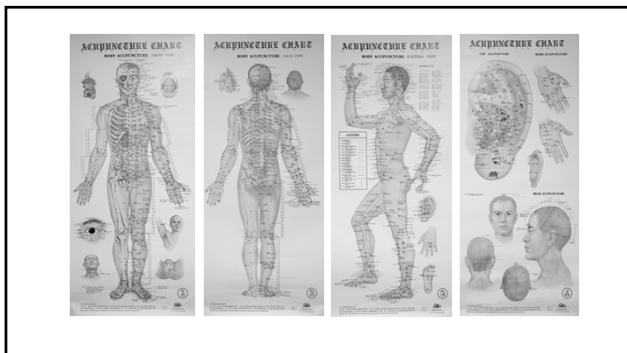
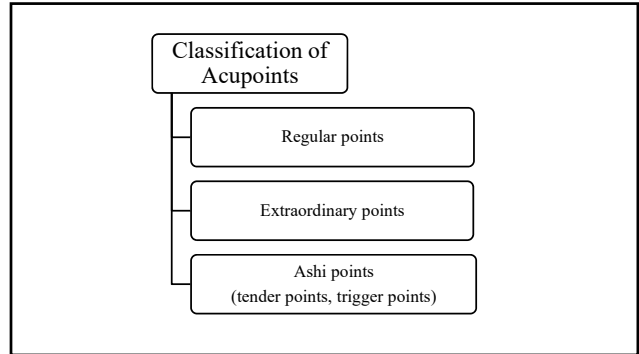
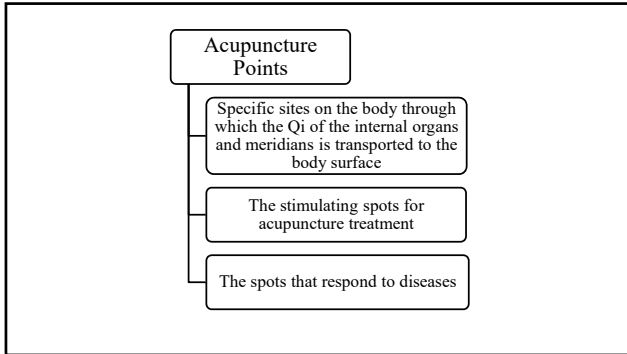
Body Acupuncture System



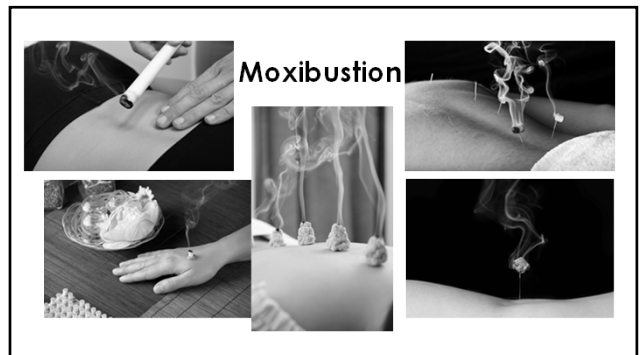
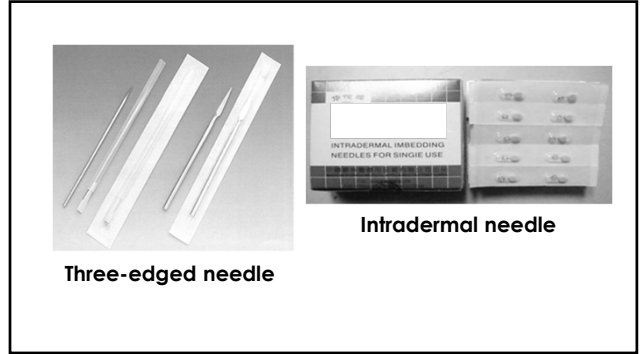
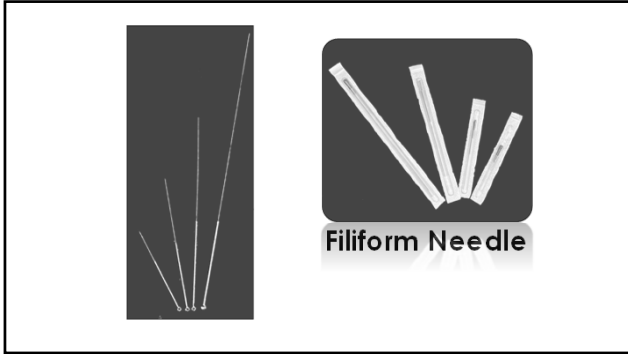
Micro-Acupuncture Systems

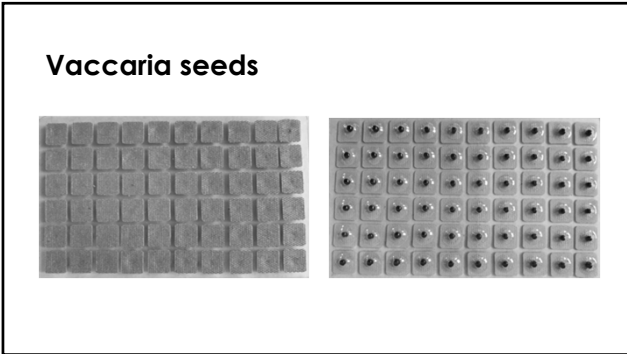
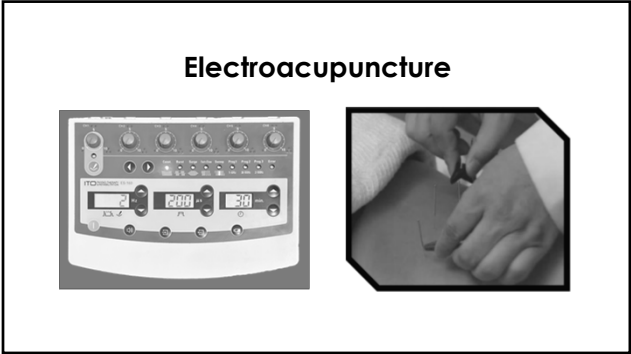
- Auricular Acupuncture
- Scalp Acupuncture
- Umbilical Acupuncture
- Facial and Nasal Acupuncture
- Ocular Acupuncture
- Wrist & Ankle Acupuncture
- Acupuncture on the Radial Aspect of the 2nd Metacarpal bone
- Hand & Foot Acupuncture





- The stimulating methods of acupoints**
- Needling
 - Moxibustion
 - Electrical Stimulation
 - Acupressure
 - Cupping
 - Vaccaria Seeds Pressure
 - Laser Stimulation (Laser Acupuncture)
 - Magnetic Stimulation
 - Chinese Herbal Medicine Point Application
 - Point Injection
 - And more





Laser acupuncture

- ❑ Most lasers used in acupuncture are known as low-level lasers or "cold lasers"
- ❑ Studies show that low-level lasers can help regenerate cells, decrease pain, reduce inflammation, improve circulation, and stimulate hair growth
- ❑ Multiple published studies have shown good effects of laser acupuncture for the following conditions: hiccups, bed wetting, weight loss, post-operative nausea and vomiting, pain control, surgical anesthesia, dental anesthesia, carpal tunnel syndrome, stroke-related paralysis. Obviously, as more studies are performed, more information will be found.

What can acupuncture help?



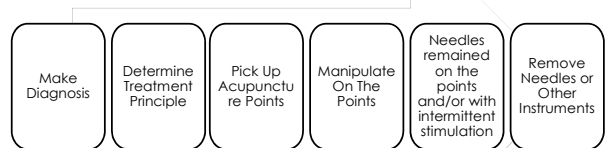
Frequently treated symptoms

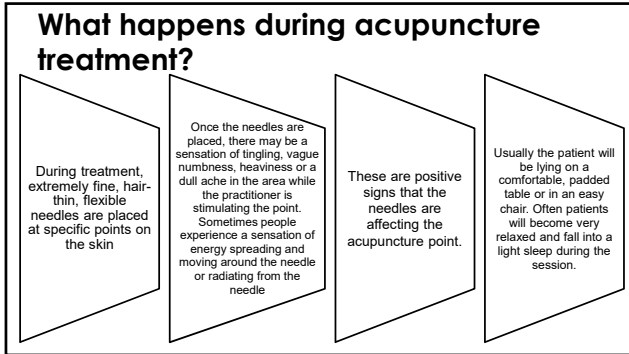
- Headaches and migraines
- Neck pain/stiffness
- Shoulder and arm pain
- Back/hip pain and leg pain
- Digestive problems
- Menstrual problems
- Fertility concerns
- Respiratory health
- Mental and emotional disorders
- Cancer supportive treatment (help cancer or cancer treatment-related symptoms)

Commonly treated conditions at OSU CIH

- Headache/Migraines
- Facial Pain
- Neck Pain
- Shoulder Pain/ "Frozen Shoulder"
- Back Pain/Low Back Pain
- Sciatica
- Fibromyalgia/Myofascial pain/Neuralgia/Neuritis/Radiculitis
- Arthritis/Osteoarthritis
- Tendonitis/"Tennis Elbow"
- Carpal Tunnel Syndrome
- Temporomandibular Joint Disorders(TMD)
- Contracture of Joint/Spasm of Muscle
- Neuropathies
- Automobile and Sports Injuries
- Stress, Anxiety, Depression and Insomnia
- Menopause Syndrome/PMS
- Gynecological Disorders
- Infertility in Males and Females
- Bell's Palsy/Paresis following a stroke
- Allergies, Respiratory Diseases
- Skin Diseases
- Smoking Cessation
- Sexual Dysfunction
- Digestive System Problems/Constipation/IBS/ Nausea/Vomiting
- Cancer Treatment Support
- Immunity Enhancement

Clinical procedure of acupuncture





What should a patient expect during and afterwards?

During initial visit

- Taking a full medical history
- Asking questions about the patient's symptoms, health, lifestyle, etc.
- Giving a physical exam
- Checking the patient's tongue and pulse
- Reviewing the patient's any pertinent medical history, including lab tests and imaging reports, etc.
- Discussing assessment and treatment plan (including the course and frequency of treatment) as well as cautions
- Receiving an acupuncture treatment
- Chinese herbal medicine, diet, exercise, and other Oriental medicine modalities may be recommended

During return visit

- Checking for any changes from the previous visit
- Adjusting the treatment according to patient's response to the treatment.

c

- it is recommended to drink plenty of water and take it easy. About 10 to 15 % of time, some patients may experience some mild residual pain in the needling area, slight bruise on the skin, mild headache, lightheaded, sleepy, or pain that worsens a little bit during the first day or two right after treatment.
- These symptoms are usually not concerning or require medical help.
- If the pain is severe, then a heating pad or ice or OTC pain reliever is recommended.

How long does a treatment usually take?

- An office visit will typically last from 30 minutes to 1 hour and, longer than 1 hour for some cases.
- The needles, once inserted, will usually be left in place from 15 to 45 minutes.
- The length of a visit can vary due to desired results and the type of acupuncture technique best suited for each individual treatment.

How many treatments will a patient need and how often?

- ❑ The number of treatments varies from person to person.
- ❑ Although some people respond well to only one treatment, more are often necessary.
- ❑ The frequency and number of treatments needed is related to the patient's condition.
- ❑ Generally, longer and more severe conditions may require more frequent treatments, or a longer course of treatment, but each individual case is unique.
- ❑ Acupuncture can be scheduled as often as five times a week or as little as once a month.
- ❑ Although some patients respond favorably after only one or two treatments, others may need more treatments before they notice an improvement.
- ❑ As symptoms improve, fewer visits are required.

Is acupuncture painful?

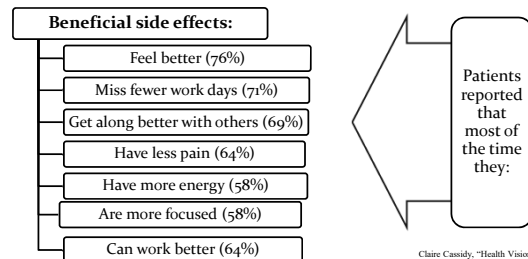
- ❑ Acupuncture needles are hair-thin and solid, and are made from stainless steel.
- ❑ The point is smooth (not hollow with cutting edges like a hypodermic needle).
- ❑ They are different from the needles used in a hospital.
- ❑ In most cases, insertion by a skilled practitioner is performed without discomfort.
- ❑ The slight sensation upon insertion may resemble a pinch or a mosquito bite.

Is acupuncture safe?

- ❑ Acupuncture is safe when performed by a qualified practitioner
- ❑ FDA regulates acupuncture needles for use by license practitioners
- ❑ Needles manufactured and labeled according to certain standards
- ❑ Needles are sterile, non-toxic, single use
- ❑ Use a new set of disposable needles for each treatment session
- ❑ Swab acupuncture treatment sites with alcohol before insertion
- ❑ Has treated billions of people over thousands of years

Acupuncture is extremely safe!

Beneficial side effects:



Chaire Cassidy, "Health Visions 2000"

Contraindications

Pregnant women:

❑ Points on the lower abdomen and lumbosacral region under three months, points on the upper abdomen and lumbosacral region after three months

❑ LI4, SP6, UB60, UB67, GB21, ST12

Infants:

❑ Points on the vertex should be avoided when the fontanel is not closed, and needles should not be retained

Contraindications

Big blood vessels area:

❑ ST30, LV14, ST9, LU8, ST42

Patients who are:

- ❑ extremely weak,
- ❑ overly fatigued,
- ❑ too hungry,
- ❑ very drunk,
- ❑ very angry

Contraindications

Lymph edema (no needles in direct area)

Platelets <50,000

ANC<500

WBC<1500

Acute irregular heartbeat or failure

Caution with anticoagulant use, bleeding tendency

Contraindications

No electro-acupuncture

for patient who fears electric stimulation or are unable to cooperate

No electro-acupuncture

For patients with pacemakers

No electro-acupuncture

For patients who are drunk, exhausted, overly hungry or overfed, angry, terrified, or nervous

Are there some misconceptions about acupuncture ?

Acupuncture is painful

- Many people are scared of having acupuncture because of the use of needles.
- In reality, acupuncture needles are hair-thin and much finer than needles used for shots and blood draws.
- In most cases, patients may not feel the insertion of a needle, or it may feel like a small pinch or a mosquito bite.

Are there some misconceptions about acupuncture ?

Acupuncture is only good for pain management

- Acupuncture works very well for pain management. But pain is only one of many issues Acupuncture can relieve.
- Acupuncture has been used to treat a variety of medical conditions
- such as allergies, infertility, anxiety, depression, stress, insomnia, constipation, IBS, side-effects of cancer treatment, and many others.



Overview of Acupuncture (Part 2)

Linda Chun, MD
*Assistant Professor - Clinical
Internal Medicine - Pediatrics
Director, Integrative Health Fellowship
OSU Center for Integrative Health*

MedNet21
Continuing Medical Education

The Ohio State University
WEXNER MEDICAL CENTER

Objectives

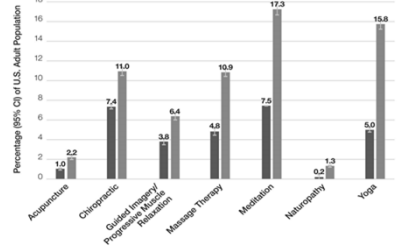
- Review use of acupuncture in the US
- Discuss when to consider acupuncture in practice
- Present evidence for acupuncture for common conditions
- Review how to find an acupuncturist

National Health Interview Survey

- Between 2002 and 2012, 50% increase in number of acupuncture users
- In 2012
 - 6.4% of US adults reported they have used acupuncture
 - 1.7% of US adults reported used acupuncture in past 12 months
 - 3.5 million Americans used acupuncture in last 12 months
- Acupuncture not first line pain management option

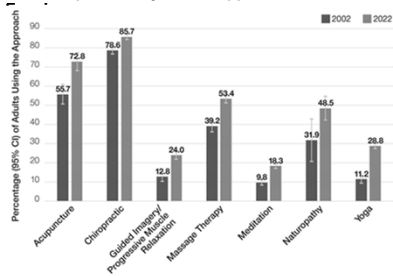
2022 National Health Interview Survey

Use of Complementary Health Approaches: 20-Year Trends



2022 National Health Interview Survey

Use of Complementary Health Approaches for Pain: 20-Year Trends



When to consider acupuncture?

- Part of integrative medicine approach
- In line with patient preferences
- Desire for non-pharmaceutical treatment option
- Goal of reducing dependence on medications
- Affordable options available
- No contraindications
- Supported by evidence



<https://pixabay.com/photos/acupuncture-needles-hand-medicine-6324472/>

How does it work?



<https://pixabay.com/photos/acupuncture-acupuncture-points-2720489/>

- TCM explanation
- Western medicine theories
 - Autonomic nervous system theory
 - Neurotransmitter theory
 - Gate control theory
 - Vascular-interstitial theory
 - Blood chemistry theory
- PET scan, Functional MRI
 - To study acupuncture analgesia

How to talk about acupuncture

- Strive to discuss with cultural sensitivity
- Respect and recognize origins of acupuncture
- Express gratitude for this practice
- Do our part to avoid cultural misappropriation



<https://pixabay.com/photos/chinese-medicine-3528259/>



<https://pixabay.com/photos/herb-food-rizome-cng-produce-6871011/>

Acupuncture and Knee Osteoarthritis

- 2004 Randomized placebo-controlled trial, 570 patients
- Compared 24 acupuncture sessions over 26 weeks with sham acupuncture or educational approach
- WOMAC pain and function scores: 4, 8, 14, 26 weeks
- PAIN: By week 14, pain significantly decreased more in true group compared to sham (40% decrease)
- Significant differences remained at week 26

Annals of Internal Medicine

Berman BM, Lixing L, et al. Effectiveness of Acupuncture as Adjunctive Therapy in Osteoarthritis of the Knee: A Randomized Controlled Trial. *Annals of Internal Medicine*. 2004;141:901-910

Acupuncture and Knee Osteoarthritis

- FUNCTION: weeks 8, 14, 26 true acupuncture with significantly greater improvement compared to sham
- High attrition rate, particularly education group (52%)
- Acupuncture appears to be safe and effective for reducing pain, improving function



<https://pixabay.com/photos/acupuncture-herbalistic-healing-9126777/>

Berman BM, Lixing L, et al. Effectiveness of Acupuncture as Adjunctive Therapy in Osteoarthritis of the Knee: A Randomized Controlled Trial. *Annals of Internal Medicine*. 2004;141:901-910

Acupuncture and Peripheral Joint Osteoarthritis

- 2010 Cochrane review – searched MEDLINE and EMBASE
- 16 RCT -- 3498 people, OA of knee and/or hip
- Comparing traditional needle acupuncture with sham, another active treatment, or waiting list control group
- Excluded dry needling/trigger point therapy and laser
- At least 6 weeks of observation
- At least one of following outcome measures: pain, function, symptom severity



Manheimer E, Cheng K, Linde K, Lao L, Yoo J, Wieland S, van der Windt DA, Berman BM, Bouter LM. Acupuncture for peripheral joint osteoarthritis. Cochrane Database Syst Rev. 2010 Jan 20;2010(1):CD001977. doi: 10.1002/14651858.CD001977.pub2. PMID: 20091527; PMCID: PMC3169099.

Acupuncture and Peripheral Joint Osteoarthritis

- **Compared with sham:**
Statistically significant short-term improvement in pain and function that did not meet threshold for clinical relevance
- **Compared with waiting list:**
Statistically significant, clinically relevant short-term improvement in pain and function
- **Compared with education and consult groups:**
Clinically relevant short- and long-term improvement in pain and function

Manheimer E, Cheng K, Linde K, Lao L, Yoo J, Wieland S, van der Windt DA, Berman BM, Bouter LM. Acupuncture for peripheral joint osteoarthritis. Cochrane Database Syst Rev. 2010 Jan 20;2010(1):CD001977. doi: 10.1002/14651858.CD001977.pub2. PMID: 20091527; PMCID: PMC3169099.

Acupuncture and Peripheral Joint Osteoarthritis

- Acupuncture as adjuvant to exercise: no added benefit
- Sham acupuncture (+/- needle insertion) is not an inert placebo
- Sham-controlled trials show statistically significant benefits however these are small. Wait list-controlled trials suggest statistically significant and clinically relevant benefits, may be due to expectation or placebo effects.



<https://i.pinimg.com/photos/acupuncture-asian-medicine-needles-2277444/>

Manheimer E, Cheng K, Linde K, Lao L, Yoo J, Wieland S, van der Windt DA, Berman BM, Bouter LM. Acupuncture for peripheral joint osteoarthritis. Cochrane Database Syst Rev. 2010 Jan 20;2010(1):CD001977. doi: 10.1002/14651858.CD001977.pub2. PMID: 20091527; PMCID: PMC3169099.

Acupuncture for Low Back Pain

- 2015 Comprehensive analysis of results of systemic reviews
- Any type LBP (acute/subacute and chronic)
- Medline, EMBASE, AMED, CINAHL, Cochrane Library, China National Knowledge Infrastructure, Wan Fang Database
- 16 systemic reviews of RCT



Evidence-Based Complementary and Alternative Medicine

Liu L, Skinner M, McDonough S, Mabire L, Baxter GD. Acupuncture for low back pain: an overview of systematic reviews. Evid Based Complement Alternat Med. 2015;2015:328196. doi: 10.1155/2015/328196. Epub 2015 Mar 4. PMID: 25821485; PMCID: PMC4364128.

Acupuncture for Low Back Pain

- Comparing acupuncture with: sham, no treatment/waiting list, conventional therapy, or sham therapy/placebo (sham laser, sham TENS)
- Included reviews where effectiveness of acupuncture could be isolated
- Time points: <3 months, >=3 months and <1 year, >=1 year follow up
- Outcome measures: pain, function, overall improvement

Liu L, Skinner M, McDonough S, Mabire L, Baxter GD. Acupuncture for low back pain: an overview of systematic reviews. Evid Based Complement Alternat Med. 2015;2015:328196. doi: 10.1155/2015/328196. Epub 2015 Mar 4. PMID: 25821485; PMCID: PMC4364128.

Acupuncture for Low Back Pain

- **For Acute LBP:**
Evidence that acupuncture has more favorable effect than sham for relieving pain was inconsistent
- **For Chronic LBP:**
Evidence consistently demonstrated acupuncture provides short-term benefit for pain and function, compared with no treatment or when used with another conventional intervention
- **For Chronic LBP:**
Acupuncture produces short term reduction in pain compared to sham, no impact on functional limitation

Liu L, Skinner M, McDonough S, Mabire L, Baxter GD. Acupuncture for low back pain: an overview of systematic reviews. Evid Based Complement Alternat Med. 2015;2015:328196. doi: 10.1155/2015/328196. Epub 2015 Mar 4. PMID: 25821485; PMCID: PMC4364128.

Acupuncture for Low Back Pain

- Acupuncture in isolation or as adjunct to other interventions should be advocated in routine clinical practice for care of chronic LBP



- Validity of current techniques of sham acupuncture remains unclear
- Accumulating evidence that sham acupuncture is not physiologically inert
- Need for higher quality RCT, greater validity of systemic reviews
- Future research needed

<https://pikabay.com/photos/acupuncture-acupuncture-model-4207760/>

Liu L, Skinner M, McDonough S, Mabire L, Baxter GD. Acupuncture for low back pain: an overview of systematic reviews. Evid Based Complement Alternat Med. 2015;2015:328196. doi: 10.1155/2015/328196. Epub 2015 Mar 4. PMID: 25821485; PMCID: PMC4364128.

Acupuncture for Low Back Pain

- 2007 Joint practice guideline from American College of Physicians and American Pain Society :

RECOMMENDATION 7: For patients who do not improve with self-care options, clinicians should consider the addition of nonpharmacologic therapy with proven benefits-for acute low back pain, spinal manipulation; for chronic or subacute low back pain, intensive interdisciplinary rehabilitation, exercise therapy, acupuncture, massage therapy, spinal manipulation, yoga, cognitive-behavioral therapy, or progressive relaxation (weak recommendation, moderate-quality evidence).

Chou R, Gaseem A, Snow V, Casey D, Cross JT Jr, Shekelle P, Owens DK. Clinical Efficacy Assessment Subcommittee of the American College of Physicians; American College of Physicians; American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. Ann Intern Med. 2007 Oct 2;147(7):478-91. doi: 10.7326/0003-4819-147-7-200710020-00006. Erratum in: Ann Intern Med. 2008 Feb 5;148(3):247-8. PMID: 17909209.

Acupuncture for Migraine

- 2016 24-week randomized clinical trial
- 249 patients ages 18-65 years with migraine without aura
- Migraines occurring 2-8 times per month
- Electroacupuncture compared with sham acupuncture and waiting list
- 4 weeks of treatment (5 days per week), then 20 weeks of follow up
- Primary outcome: change in frequency of migraine from baseline to week 16
- Secondary outcomes: migraines days, average severity, medication intake every 4 weeks

JAMA Internal Medicine

Zhao L, Chen J, Li Y, et al. The Long-term Effect of Acupuncture for Migraine Prophylaxis: A Randomized Clinical Trial. *JAMA Intern Med.* 2017;177(4):508-515. doi:10.1001/jamainternmed.2016.9378

Acupuncture for Migraine

- Set protocol: 4 acupoints used per treatment with electric stim
- Sham acupuncture included needle insertion and electricity yet different needling technique
- Waiting-list group informed would receive 20 free acupuncture sessions at end of trial
- Headache diary, QOL questionnaire (MSQ), impairment of emotion scales (SAS,SDS) assessed at baseline and 4 weeks

Zhao L, Chen J, Li Y, et al. The Long-term Effect of Acupuncture for Migraine Prophylaxis: A Randomized Clinical Trial. *JAMA Intern Med.* 2017;177(4):508-515. doi:10.1001/jamainternmed.2016.9378

Acupuncture for Migraine

- Change in frequency of migraine attacks
 - Decreased more in true acupuncture group compared with sham ($p = .002$)
 - Decreased more significantly in true acupuncture group compared to waiting-list group ($p < .001$)
 - Sham not statistically different from waiting list group
- Significant improvement in MSQ and SAS scores in true acupuncture group compared with waiting list group
- Acupuncture may be associated with long-term reduction in migraine recurrence compared with sham or waiting list.



<https://pubmed.ncbi.nlm.nih.gov/28000000/>

Zhao L, Chen J, Li Y, et al. The Long-term Effect of Acupuncture for Migraine Prophylaxis: A Randomized Clinical Trial. *JAMA Intern Med.* 2017;177(4):508-515. doi:10.1001/jamainternmed.2016.9378

Acupuncture for Chemotherapy-induced Peripheral Neuropathy (CIPN)

- 2020 Pilot RCT, included 75 patients with solid tumors
- Persistent moderate to severe CIPN, 3+ months chemo completed
- Numbness, tingling, pain rated ≥ 4 on NRS
- Not on stable neuropathic medication
- Compared real acupuncture with sham acupuncture or usual care
- Assessment at 8 weeks after treatment
- Primary outcome: Symptom severity measured by NRS (11 point scale)

JAMA Network Open

Bao T, Palli S, Chen C, et al. Effect of Acupuncture vs Sham Procedure on Chemotherapy-Induced Peripheral Neuropathy Symptoms: A Randomized Clinical Trial. *JAMA Netw Open.* 2020;3(3):e200661. doi:10.1001/jamanetworkopen.2020.0661

Acupuncture for Chemotherapy-induced Peripheral Neuropathy (CIPN)

- Real acupuncture: set protocol + electrical acupuncture
- Sham acupuncture: noninsertion on nonacupoints
- Usual care: no intervention received
- NRS-measured pain, tingling, numbness significantly decreased in real acupuncture compared to usual care at 8 weeks
- From baseline to week 8:
 - Mean absolute reduction in CIPN pain was greatest in real acupuncture (-1.75)
 - Mean absolute reduction in CIPN was least in usual care (-0.19)

Bao T, Patil S, Chen C, et al. Effect of Acupuncture vs Sham Procedure on Chemotherapy-Induced Peripheral Neuropathy Symptoms: A Randomized Clinical Trial. JAMA Netw Open. 2020;3(3):e200681. doi:10.1001/jamanetworkopen.2020.0681

Acupuncture for Chemotherapy-induced Peripheral Neuropathy (CIPN)

- Acupuncture resulted in significant improvement in CIPN symptoms compared with usual care.
- Sufficient pilot data generated to inform a definitive sham-controlled efficacy trial.



<https://istock.com/photos/acupuncture-acupuncture-needles-568136/>

Bao T, Patil S, Chen C, et al. Effect of Acupuncture vs Sham Procedure on Chemotherapy-Induced Peripheral Neuropathy Symptoms: A Randomized Clinical Trial. JAMA Netw Open. 2020;3(3):e200681. doi:10.1001/jamanetworkopen.2020.0681

Insurance Coverage

- Private Insurance
 - Patients need to inquire about their individual plan
- Medicare
 - Jan 2020 – Centers for Medicare & Medicaid Services (CMS) finalized decision
 - Coverage of acupuncture for chronic low back pain
 - Up to 12 sessions in 90 days
 - Additional 8 sessions for those who demonstrate improvement

Insurance Coverage

- Medicaid – in Ohio
 - Low back pain
 - Migraine
 - Cervical/neck pain
 - Osteoarthritis of the hip
 - Osteoarthritis of the knee
 - Nausea/vomiting related to pregnancy or chemotherapy
 - Acute post-operative pain

Community Acupuncture

- Treatment model that seeks to create more equity in healthcare
- Sessions take place in a communal setting
- Typically sliding scale fee option
- Increases affordability and accessibility
- Acupuncture often more effective with more frequent treatments
- Community Acupuncture Network



<https://pocacoop.com/>



"We envision a world in which every community has access to local, affordable acupuncture to reduce collective and individual suffering and to nurture resilience." - POCA

<https://urbanacupuncturecenter.org/>

Finding an Acupuncturist



- NCCAOM.org
 - National Certification Commission for Acupuncture and Oriental Medicine
 - Offers board certification in acupuncture and oriental medicine
 - Documentation of competency for licensure
 - Practitioner directory
- Acufinder.com
- American Board of Medical Acupuncture since 2000
 - Listing of all certified Diplomates
 - Listing of approved training programs
- Ensure appropriate training and certification



References

[Acupuncture Analgesia: I. The Scientific Basis - Anesthesia & Analgesia \(hw.com\)](#)

Bao T, Palli S, Chen C, et al. Effect of Acupuncture vs Sham Procedures on Chemotherapy-Induced Peripheral Neuropathy Symptoms: A Randomized Clinical Trial. *JAMA Netw Open*. 2020;3(3):e200681. doi:10.1001/jamanetworkopen.2020.0681

Berman BM, Lixing L, et al. Effectiveness of Acupuncture as Adjuvant Therapy in Osteoarthritis of the Knee: A Randomized Controlled Trial. *Annals of Internal Medicine*. 2004;141:901-910

Chou R, Qaseem A, Snow V, Casey D, Cross JT Jr, Shekelle P, Owens DK. Clinical Efficacy Assessment Subcommittee of the American College of Physicians; American College of Physicians; American Pain Society Low Back Pain Guidelines Panel. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007 Oct 21;147(7):478-91. doi: 10.7326/0003-4819-147-7-200710200-00006. Erratum in: *Ann Intern Med*. 2008 Feb 5;148(2):247-8. PMID: 17909209.

<https://www.painp.org/journal/issues/2019/07/19a09.htm>

<https://www.cms.gov/newsroom/press-releases/cms-finalizes-decision-cover-acupuncture-chronic-low-back-pain-medicare-beneficiaries>

<https://www.nccih.nih.gov/>

Li HC, Liu YW, Hsieh CL. Acupuncture-Analgesia-Mediated Alleviation of Central Sensitization. *Evid Based Complement Alternat Med*. 2019 Mar 7;2019:6173412. doi: 10.1155/2019/6173412. PMID: 30984277; PMCID: PMC6431485.

Liu L, Skinner M, McDonough S, Mabire L, Baxter GD. Acupuncture for low back pain: an overview of systematic reviews. *Evid Based Complement Alternat Med*. 2015;2015:328196. doi: 10.1155/2015/328196. Epub 2015 Mar 4. PMID: 25821485; PMCID: PMC4364128.

Manheimer E, Cheng K, Linde K, Lao L, You J, Wieland S, van der Windt DA, Berman BM, Bouler LM. Acupuncture for peripheral joint osteoarthritis. *Cochrane Database Syst Rev*. 2010 Jan 20;2010(1):CD001977. doi: 10.1002/14651858.CD001977.pub2. PMID: 20091527; PMCID: PMC3169099.

Nahri RL, Barnes PM, Stussman BJ. Expenditures on Complementary Health Approaches: United States, 2012. *Natl Health Stat Report*. 2016;22(99):1-11.

References

Qaseem A, Witt TJ, McLean RM, et al. Noninvasive treatments for acute, subacute, and chronic low back pain: a clinical practice guideline from the American College of Physicians. *Ann Intern Med*. 2017;166(7):514-530.

Tek H, Nielsen A, Pelletier KR, Bonakdar R, Simmons S, Glick R, Ratner E, Lemmon RL, Wayne P, Zador V; Pain Task Force of the Academic Consortium for Integrative Medicine and Health. Evidence-Based Neuropharmacologic Strategies for Comprehensive Pain Care: The Consortium Pain Task Force White Paper. *Explore (NY)*. 2018 May-Jun;14(3):177-211. doi: 10.1016/j.explore.2018.02.001. Epub 2018 Mar 1. PMID: 29735362.

Trends in the Use of Complementary Health Approaches Among Adults: United States, 2002-2012 by Taiyaa C. Clarke, Ph.D., M.P.H., Lindsey I. Black, M.P.H., National Center for Health Statistics; Barbara J. Stussman, B.A., National Institutes of Health; Patricia M. Barnes, M.A., National Center for Health Statistics; and Richard L. Nahri, Ph.D., M.P.H., National Institutes of Health.

Vickers AJ, Vertosick EA, Lewith G, et al. Acupuncture Trialists' Collaboration. Acupuncture for chronic pain: update of an individual patient data meta-analysis. *J Pain*. 2018;19(5):455-474.

Zhang Y, Lao L, Chen H, Gaballas R. Acupuncture Use among American Adults: What Acupuncture Practitioners Can Learn from National Health Interview Survey 2007? *Evid Based Complement Alternat Med*. 2012;2012:710750. Epub 2012 Feb 22. PMID: 22474517; PMCID: PMC3296189.

Zhao L, Chen J, U Y, et al. The Long-term Effect of Acupuncture for Migraine Prophylaxis: A Randomized Clinical Trial. *JAMA Intern Med*. 2017;177(4):508-515. doi: 10.1001/jamainternmed.2016.9378