

# Non-Pharmacological Pain Management



PRESENTED BY



# Conventional, complementary, and alternative medicine

- **Conventional medicine**

- Medicine practiced by an MD, DO (APN and Pas as well), and allied health professionals, such as physical therapists, psychologists, and nurses

- **Complementary medicine**

- Used in conjunction with conventional medicine to enhance outcomes

- **Alternative medicine**

- Used in place of conventional medicine

- **Complementary and alternative medicine (collectively CAM)**

- System of diverse medical systems, practices, and products that are not considered to be part of conventional medicine

# National Institute of Health (NIH) Classification

- **Mind-Body Medicine**

- Hypnosis, biofeedback, guided imagery, meditation, spirituality

- **Biologically-Based Practices**

- Herbs, supplements, aromatherapy

- **Alternative Medical Systems**

- Homeopathy, traditional Chinese medicine, Ayurveda, naturopathy

- **Manipulative or Body-Based Practices**

- Massage, chiropractic, craniosacral, yoga
- Energy medicine

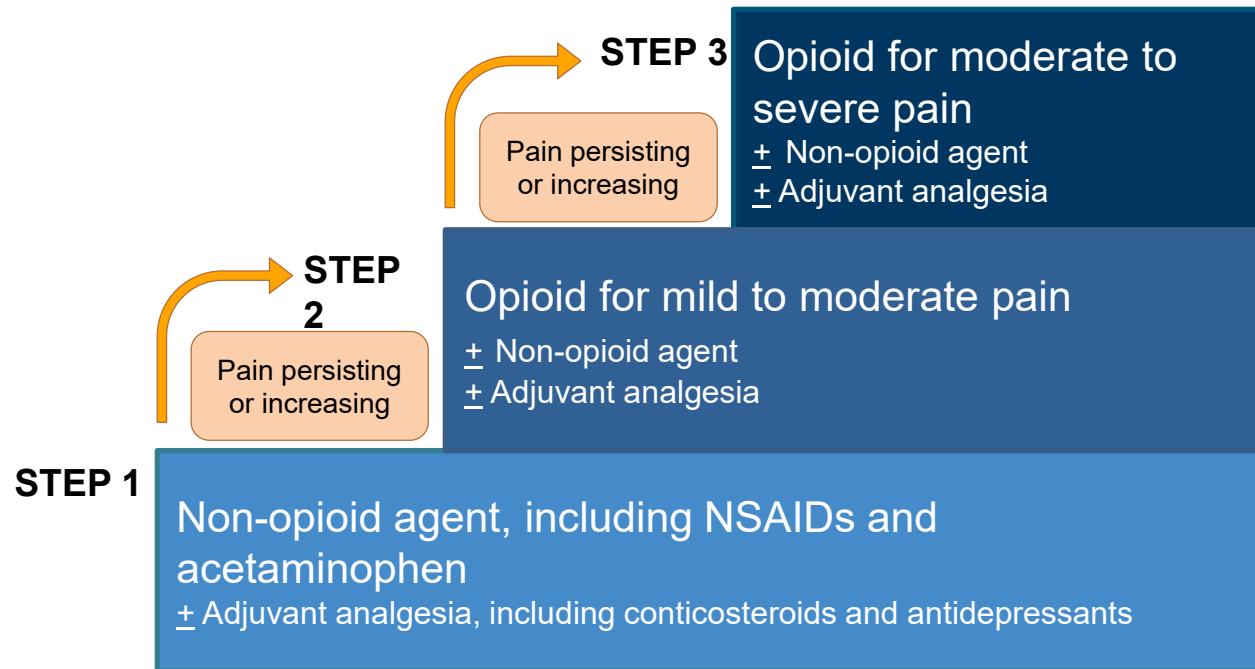
# Chronic Pain

- Pain lasting more than 3 months
- Associated with ongoing nerve damage, inflammation, muscle spasm, etc.
- Can persist after original injury heals
- Could be related to emotional or learned behavior issues
- Central chronification may occur

# Proper treatment approach

- Effective treatment may lessen the economic burden and social impact
- Non-drug options are underutilized
- Most common World Health Organization (WHO) pain ladder
- Add physical therapy (PT) if feasible

## WHO'S PAIN RELIEF LADDER



# What we know now



NSAIDs and acetaminophen are as effective as opioids at 6 months



This means that for moderate to severe chronic pain, opioids aren't that helpful



Opioids may make the pain worse and can increase risk of aberrant behaviors, cause hyperalgesia, and/or introduce addiction



# Mind-body medicine

- Hypnosis
- Biofeedback
- Guided imagery
- Meditation
- Relaxation training

# Hypnosis

An altered state of awareness within which persons experience heightened suggestibility

- Mental imagery
- Self-hypnosis
- Visualization



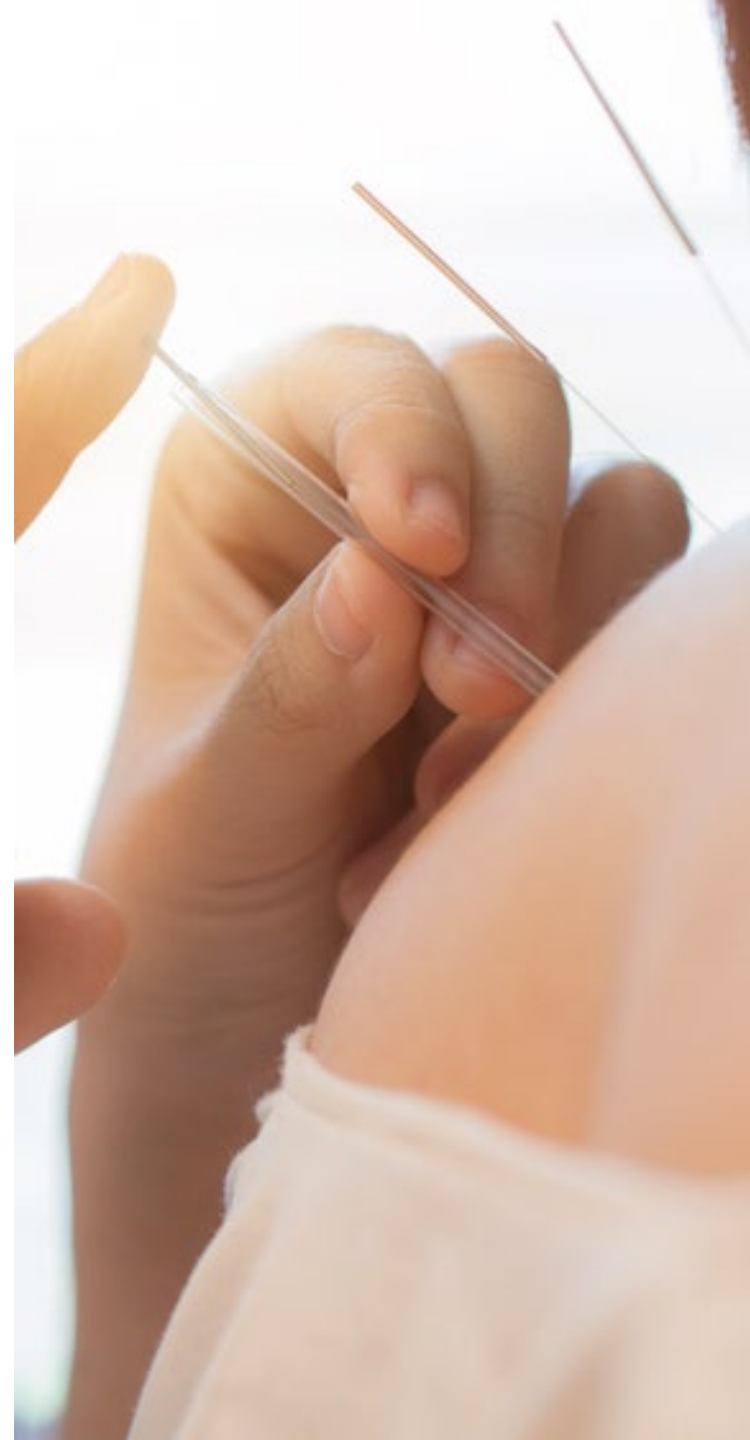


# Biofeedback (BFB)

Feedback	Tool
Skin temperature	Digital thermal gauge
Heart rate Respiratory rate	Pulse/respiratory monitor
Galvonic skin response	GSR meter
sEMG	Electromyography
Heart rate variability (HRV)	Finger/Earlobe sensor

# Acupuncture

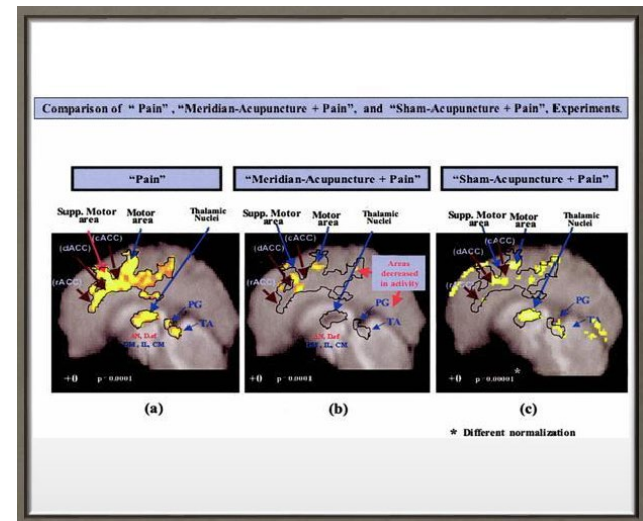
- Manipulation of specific points on the body
- Meridians: 14 invisible channels of energy flow, forming a network
- Qi (chee) ebbs and flows with changes in a person's mental, physical, and spiritual well-being
- Practiced in China for thousands of years



# Functional magnetic resonance imaging (fMRI) changes

fMRI demonstrates a correlation between activation of specific areas of the brain and corresponding acupoint stimulation predicted by ancient acupuncture literature.

- A = anterior nucleus
- cACC = caudal anterior cingulate cortex
- CM = centromedian nucleus
- dACC = dorsal anterior cingulate cortex
- DM = dorsomedial nucleus
- DsF = dorsal superficial nucleus
- IL = intralaminar nuclei
- PG = caudal inferior parietal lobule, area 7a
- rACC = rostral anterior cingulate cortex
- TA = tectal area



# Acupuncture safety

- Review of 22 randomized controlled trials (RCTs)
  - Sedation 32%
  - Needle discomfort 26%
  - Redness or irritation at puncture site 7%
  - Hematoma 1%
  - Faintness 1%
  - *Jindal et al Pediatr Hematol Oncol 2008*

# Acupuncture outcomes

- *Acupuncture for Chronic Pain: Update of an Individual Patient Data Meta-Analysis; Andrew J. Vickers' et al. The Journal of Pain May 2018, Volume 19, Issue 5, pages 455-474*
  - 20,827 patients from 39 trials
  - Superior to sham and no acupuncture ( $p < 0.001$ )
  - *“Acupuncture is effective for the treatment of chronic musculoskeletal, headache, and osteoarthritis pain. Treatment effects of acupuncture persist over time and cannot be explained solely in terms of placebo effects. Referral for a course of acupuncture treatment is a reasonable option for a patient with chronic pain.”*

# Massage

- 57 patients, presenting to pain clinic
- Prospective clinical trial
- Usual Rx plus massage
- Control rating before and after a 'no intervention' time period in 25
- Pain, distress, tension, discomfort, and degree of upset mood significantly lower
  - *Santhanam et al, Paediatr Anesth 2008*

# Yoga

- *Yoga, Physical Therapy, or Education for Chronic Low Back Pain: A Randomized Noninferiority Trial. Saper RB et al. Ann Intern Med. 2017 July 18;167(2); 85-94*
  - Single blind randomized non-inferiority trial 320 participants with chronic low back pain (cLBP)
  - Manualized yoga program was noninferior to PT, however the PT group had a disproportionate loss to follow up
- *Yoga treatment for chronic non-specific low back pain. Wiedland LS et al. Cochrane Database Syst Rev. 2017 Jan 12;1:DC010671*
  - Eval for cLBP
  - There is low-to moderate-certainty evidence that yoga, compared to non-exercise controls, results in small to moderate improvements in back-related function at 3 and 6 months
  - Yoga may also be slightly more effective for pain at 3 and 6 months, however the effect size did not meet predefined levels of minimum clinical importance.



# Aromatherapy

- **Insomnia** — lavender, neroli
- **Anxiety** — sweet orange, sandalwood
- **Nausea** — spearmint, ginger
- **Fatigue** — lemon, peppermint
- **Pain** — rosemary, chamomile
- **Topical** — lemongrass, black pepper



# Intervention pain management

- Spinal steroid injections
  - Helpful if identified nerve root compression and radicular pain
  - Epidural steroid injections: update on efficacy, safety, and newer medications for injection
    - *Kozlov N et al. Minerva Anesthesiol. 2015 Aug 91(8):901-909*
- Spinal stimulators
  - Refractory neuropathic pain of defined level