Non-Pharmacologic Approaches to Pain

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Low Back Pain

For patients with chronic low back pain, initially select non-drug therapy with

- Exercise
- Acupuncture
- Mindfulness-based stress reduction
- Tai chi
- Yoga
- Progressive relaxation
- Electromyography biofeedback
- Operant therapy
- Cognitive behavioral therapy
- Spinal manipulation

Acupuncture

- Not much difference in pain outcomes in the short-term, but likely better function with chronic LBP
- More effective than no treatment in improving pain and function in the immediate term.
- Evidence was very low-certainty considering most of studies had high risk of bias, inconsistency, and small sample size introducing imprecision.

Cochrane Review 2020

Massage Therapy

- 3096 participants
- Acute, sub-acute and chronic LBP had improvements in pain in the short-term.
- Functional improvement was observed in participants with sub-acute and chronic LBP when compared with inactive controls, but only for the short-term.

Cochrane Review 2015

Chiropractic Care

- 750 active-duty members of the military with low back pain compared usual medical care with usual medical care plus chiropractic care
- Moderate improvement in low back pain intensity and disability at 6 weeks compared with those who received usual care alone

Goertz, et al. (2018) JAMA Open Network

- Manual-thrust manipulation provides greater short-term reductions in self-reported disability and low back pain compared with usual medical care. 94% of the manual-thrust manipulation group achieved >30% reduction in pain compared with 69% of usual medical care
- No differences at 3 and 6 months follow-up

Schneider, et al (2015), Spine

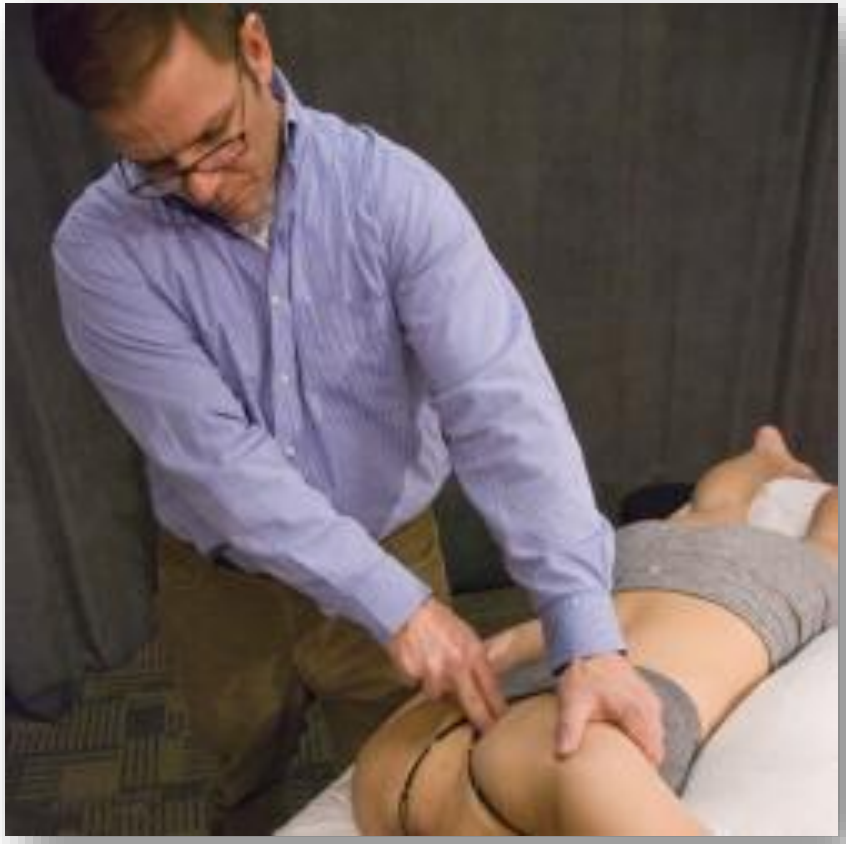
Chiropractic Care and Opioid Therapy

Patients who received initial treatment from chiropractors or physical therapists had decreased odds of short-term and long-term opioid use compared with those who received initial treatment from primary care physicians (PCPs) (adjusted OR (AOR) (95% CI) 0.10 (0.09 to 0.10) and 0.15 (0.13 to 0.17), respectively).
Kazis et al. (2019), BMJ Open

Chiropractic users had 64% lower odds of receiving an opioid prescription than non-users.
Corcoran et al. (2019) Pain Medicine

Counterstrain/Positional Release Therapy

- Tender points - can be tendons, muscle bellies and ligaments
- Radiation from the tender area follows a predictable pattern
- Taking all strain off the tender point leads to release of the spasm
- Low-quality data suggest relief from trigger point pain



Wong et al.. J Body Mov Ther 2014

Massage Therapy and Generalized Pain

Meta-analysis on MT impact on function and pain

- May be beneficial for improving various patient-reported functional outcomes
- Clear evidence compared to no treatment for pain intensity
- Beneficial across various function outcomes including anxiety and HrQoL.

Crawford, et al. Pain Med; 2016

Cochrane review; 2012 – good for short term relief, need more evidence

Neck Pain

Acupuncture

2012 meta-analysis; 29 trials, 17,000+ patients

- Acupuncture was more helpful than either no acupuncture or simulated acupuncture

Vickers, et al. Arch Intern Med; 2012

German study with >14,000 participants added acupuncture to usual care for neck pain.

- Greatest pain relief in treatment group

Witt, et al. Pain; 2006

Cochrane review 2016 - Moderate-quality evidence suggests that acupuncture relieves neck pain better than sham acupuncture at short-term follow-up – currently in review

Chiropractic care

272 participants were divided into 3 groups that received either spinal manipulative therapy (SMT) from a doctor of chiropractic (DC), pain medication (over-the-counter pain relievers, narcotics and muscle relaxants) or exercise recommendations.

- After 12 weeks, goal 75% reduction in pain
  - 57% chiropractic
  - 48% exercise
  - 33% medication group
- After 1 year, goal 75% reduction in pain
  - 53% of the drug-free groups
  - 38% medication group

Bronfort et al. (2012), Annals of Internal Medicine

Massage Therapy

Systematic review (15 trials, 1062 patients)

- Moderate evidence on improving neck pain in patients with neck pain compared with inactive therapies
- No notable improvement in dysfunction.

Cheng, et al. (2014), Evid Based Comp and Alt Med

Headache

Chiropractic Care

- 6-8 sessions of upper cervical and upper thoracic manipulation were shown to be more effective than mobilization and exercise in patients with cervicogenic headache, and the effects were maintained at 3 months.

Dunning, et al. (2016) BMC Musculoskeletal Disorders

- There was a linear dose-response relationship between spinal manipulative therapy visits and days with cervicogenic headache.
- The most effective dose was 18 visits
- Headache days were reduced by half and about 3 more days per month than for the light-massage control.

Haas, et al. (2018) Spine

Acupuncture

218 pts with chronic tension-type headache – goal 50% reduction in pain

- 20 treatments in 8 weeks
- 68% v. 48% at 12 weeks
- 4 fewer days of headache in the acupuncture group

Zheng, et al. (2020) Neurology

150 pts with migraine headache

- Sham v. actual acupuncture
- Reduction in headache days with both (3.5 v. 2.4) at 13-16 weeks

Xu, et al. (2020) BMJ

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Case 1:

History: S.E. is a 53-year-old female with 10 years of left shoulder pain. She has occipital and bitemporal headaches most days and limited ROM of her neck. She works in food service and is considering reducing her hours. Pain is located in the left trap area and extends into the occiput. It flares with weather changes and stress.

Referral history: She has been referred to ENT, PT, pain clinic for evaluation and botox injections, massage therapy, and acupuncture without relief. Nerve conduction studies and MRI of the head and neck are negative.

Physical exam:
Decreased ROM of the neck to the right. 15x5 cm area of palpable muscle spasm in the right trap
Full strength in upper extremities bilaterally.
Left leg discrepancy of 2 in when compared to the right

Case 2:

History: DC is a 43-year-old male presenting with low back pain for 3-4 months, that has progressively been getting worse. He is also experiencing a tingling sensation in his right thigh. Currently working in student affairs at the university level and travels 45-60 minutes to work every day. Sitting in the car and at his desk makes the pain worse. Changing positions (sit to stand, getting in and out of the car, rolling over bed) and bending increase the pain. He cannot stand for long periods of time due to the pain. Exercise mainly consists of walking the dog and yard work, which both aggravate his pain.

Referral history for LBP: PCP, muscle relaxers (little to no relief), PT (can't get in for about a month so trying chiro in the meantime since his wife comes in).

Other history: Reports having neck pain for a number of years. Referred for cortisone shots 2 years ago with little relief. Reports experiencing headaches a few times/year. Has also received cortisone shots for "plantar fasciitis". He is taking Lexapro for anxiety. He played soccer and cricket for many years. MVC in 2003.

Case 2:

Physical Exam: Posture assessment revealed slight forward head carriage, left head tilt, high left shoulder, high right hip. Palpation revealed hypertonicity in the paraspinal musculature of the thoracic and lumbar regions. Right leg contracture noted when lying prone on the table showing 1 inch shorter when compared to the left. Cervical ROM decreased in all directions. Lumbar ROM decreased in all directions, but flexion was very limited due to pain.

Spinal X-rays: Cervical: reverse curve. 2mm shift of atlas to the right. Narrowed disc spaces with lipping and spurring noted C3-6. Osteoarthritic changes C4-C6. Lumbar: narrowed disc spaces with lipping and spurring noted T12/L1 & L4/5/S1.

A practitioners' toolbox needs to be equipped with more than drugs and devices.

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