Overview

- This presentation is designed to inform the audience (you) of cervical pain treatment options, including those pertaining to chiropractic, along with other traditional allopathic forms of pain management.
- Approximately 40 different treatment options were identified for cervical pain and associated headaches.
- Information was gathered from UpToDate, PubMed, National Institute of Health, North American Spine Society, and the World Federation of Chiropractic reading list.

Disclosures

- Financial relationships
  - Employed as staff chiropractor at VAPAHCS
  - The statements and opinions in this presentation are mine alone and do not reflect those of the U.S. department of Veterans Affairs

Neck pain

- Good news! The majority of patients, regardless of the etiology of pain, recover with conservative therapy

Neck pain definitions

- Acute
  - 0-1 month (some studies regarded as 0-3 months)

- Subacute
  - 1-3 months

- Chronic
  - >3-6 months or greater

Whiplash and neck pain disorders


<table>
<thead>
<tr>
<th>Grade</th>
<th>Definition</th>
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<tr>
<td>I</td>
<td>No signs of symptoms of suggestive of major structural pathology and no or minor interference with ADLs</td>
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<td>II</td>
<td>No signs of symptoms of major structural pathology, but major interference with ADLs</td>
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<tr>
<td>III</td>
<td>No signs or symptoms of major structural pathology, but presence of neurological signs such as decelerated deep tendon reflexes, weakness or sensory deficit in (e.g., radiculopathy)</td>
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<td>IV</td>
<td>Signs or symptoms of major structural pathology (e.g., instability or infection)</td>
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### Whiplash and neck pain disorders

<table>
<thead>
<tr>
<th>Treatment Options</th>
<th>NAD I</th>
<th>NAD II</th>
<th>NAD III</th>
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<tbody>
<tr>
<td>Manual therapy</td>
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<td>Relaxation massage</td>
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<td>Cervical collar</td>
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<td>EMS</td>
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<td>Electroacupuncture</td>
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<td>TENS/Pulsed short wave diathermy</td>
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<td>Relaxation training</td>
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<td>Traction</td>
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<tr>
<td>Low level laser therapy</td>
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**Acute neck pain**

- **Cervical manipulation and mobilization**
    - Positive

- **Thoracic manipulation and mobilization**
    - Positive

- **Mobilization and exercise**
  - Strong recommendation, moderate-quality evidence
  - Bryans et al (2014)—Evidence-based guidelines for the chiropractic treatment of adults with neck pain
    - Short and long-term benefits (when combined with advice and exercise)

**Acute neck pain with radiculopathy**

- **Traction**
  - No recommendation for acute grades III NAD pain due to uncertainty and lack of evidence

- **Low level laser therapy**
  - No recommendation for acute grades III NAD pain due to uncertainty and lack of evidence

**Acute neck pain with radiculopathy**

- **Medication**
  - Deyo (1996)—Drug therapy for back pain: Which drugs help patients?
    - Acetaminophen/NSAIDs may be effective for mild/moderate pain
    - Mild opioids or tramadol are reasonable for acute pain, not long-term pain

- **Trigger point injections**
  - Deyo (1996)—Drug therapy for back pain: Which drugs help patients?
    - Lack of firm evidence to support use of trigger point injections (though this study was for acute and chronic low back pain)

**Acute neck pain**

- **Multimodal care (manipulation, soft tissue, exercise, education)**
    - Positive

- **Integrated neuromuscular inhibition technique**
    - No recommendation for acute grades III NAD pain due to uncertainty and lack of evidence

- **TENS**
  - Nordemar (1981)—Treatment of acute cervical pain—a comparative group study
    - "It is concluded that transcutaneous nerve stimulation is a valuable pain reducer"
  - Kroeling et al (2013)—Electrotherapy for neck pain (Cochrane review)
    - Definitive conclusions could not be drawn due to the lack of quality studies.

**Acute neck pain with radiculopathy**

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- **Low level laser therapy**
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Acute neck pain with radiculopathy

- Cervical collar
  - Brussieres et al. (2016, JMPT) - Treatment of Whiplash and Neck Pain Disorders
  - No recommendation for acute grades III-IV neck pain due to uncertainty and lack of evidence

- Supervised graded strengthening exercises
  - Brussieres et al. (2016, JMPT) - Treatment of Whiplash and Neck Pain Disorders
  - Recommended for acute grade III neck pain, weak recommendation, moderate-quality evidence

Acute whiplash neck pain

- Multimodal care (manipulation, soft tissue, exercise, education)
  - Brussieres et al. (2016, JMPT) - Treatment of Whiplash and Neck Pain Disorders
  - Recommended for grades I-II WAD pain, weak recommendation, moderate-quality evidence

- Medication
  - Peloso (2007) - Medicinal and injection therapies for mechanical neck disorders
  - Moderate evidence for methylprednisolone within 8 hours of acute whiplash (single trial)

Subacute neck pain (1-3 months)

- Thoracic spinal manipulation + mobilization
  - Bencidi et al. (2010) - Evidence of manual therapies: the UK evidence report - positive

- Cognitive Behavioral Therapy (CBT)
  - A 2015 systematic review found that CBT was better at reducing pain at short-term follow-up in patients with subacute (1-3 months) neck pain.

Cognitive Behavioral Therapy (CBT)

- American Psychological Association (APA)
  - “Psychological problems are based, in part, on faulty or unhelpful ways of thinking or on learned patterns of unhelpful behavior.”
  - Recognizing distortions in thinking and reevaluating them in context of reality to develop coping skills
  - Focusing on what's going on CURRENTLY rather than what's happened in the PAST

- Mayo Clinic
  - CBT helps you become aware of inaccurate or negative thinking so you can view challenging situations more clearly and respond to them in an effective way.
  - CBT is usually delivered alone or as a component of an integrated, multimodal, and interdisciplinary pain management program.

Veterans Affairs—CBT for chronic pain (CBT-COP)

- Evidence suggests that CBT can improve functioning and quality of life for a variety of chronic pain conditions

Botox

- Persaud (2013) - Evidence based review of botulinum toxin applications
  - Evidence doesn't support Botox as monotherapy or in combination of any other treatment for subacute or chronic neck pain

Pulsed Electromagnetic Field (PEMF)

- "Influence cell behavior by inducing electrical changes around and within the cell.
  - "Improved blood supply increases the oxygen pressure, activating and regenerating cells.
  - "Improved calcium transport increases absorption of calcium in bone and improves the quality of cartilage in joints, decreasing pain."

- Foley-Nolan (1990) - Pulsed high frequency (27MHz) electromagnetic therapy for persistent neck pain. A double-blind, placebo-controlled study of 20 patients - Significant benefit
Chronic neck pain

- Spinal manipulation
    - Recommended in conjunction with soft tissue therapy for chronic grades I-II NAD pain, weak recommendation, low-quality evidence

- Spinal manipulation/mobilization + exercise
    - Short and long-term benefits
  - Brussieres et al (2016) — Supervised Exercise with and without Spinal Manipulative Therapy
    - Positive, short and long-term
      - "suggests SMT confers little additional benefit"

- Multimodal care (manipulation, soft tissue, exercise, education)
    - Recommend for chronic grades I-II NAD pain, weak recommendation, moderate-quality evidence

- Exercise (cervico-scapulothoracic)
    - Small to large benefit at short and long-term (moderate quality evidence)
  - Brussieres et al (2016, JMPT) — Treatment of Whiplash and Neck Pain Disorders (i.e. qigong)
    - Recommend for chronic grades I-II NAD pain, weak recommendation, low-quality evidence

- Supervised strengthening exercise or home exercise
    - No recommendation due to uncertainty and lack of evidence

- Yoga
    - No recommendation due to uncertainty and lack of evidence

- Massage
    - Positive
    - Recommend high dose for chronic grades I-II NAD pain, weak recommendation, low-quality evidence

- Structured patient education vs massage
    - No recommendation due to uncertainty and lack of evidence

- Low level laser therapy (LLT)
    - No recommendation due to uncertainty and lack of evidence

- Cognitive Behavioral Therapy (CBT)
  - May help relieve neck pain symptoms through relaxation, self-education, and chronic pain management techniques.
    - For patients with chronic neck pain (6 months duration), the review found that CBT had more effect than no treatment, but did not improve pain compared with other interventions (manual therapy, physiotherapy, etc.)
    - A 2015 systematic review including 10 randomized trials.
    - Superior to group-based general physiotherapy in improving disability & pain, effect lasted for at least one year.
Chronic neck pain

Qigong

- Qigong is a Chinese approach to pain treatment involving slow movements, breathing exercises, and meditation (Tai Chi is a form of Qigong).

- Bryan et al. (2014)—Evidence-based guidelines for the chiropractic treatment of adults with neck pain
  - Minimally improved function but not global perceived benefit at short-term, moderate-quality evidence

- Brussieres et al. (2016, JMPT)—Treatment of Whiplash and Neck Pain Disorders (i.e., qigong)
  - Recommended for chronic grades I-II NAD pain, weak recommendation, moderate-quality evidence

  - More effective than no treatment and was similarly effective to exercise therapy in reducing pain and disability at 6 month follow-up.

- Rendant (2011)—Qigong versus exercise versus no therapy for patients with chronic neck pain: a randomized controlled trial.
  - Qigong was more effective than no treatment and was similarly effective to exercise therapy in reducing pain and disability at 6 month follow-up.

Traction

- Graham et al. (2006)—Mechanical traction for neck pain with or without radiculopathy
  - The current literature does not support or refute the efficacy or effectiveness of continuous or intermittent traction for pain reduction.

Cervical pillow

- Hagino (1998)—Before after study to determine the effectiveness of the AlignRight cylindrical cervical pillow in reducing chronic neck pain severity—a medium-term benefit

Biofeedback

- Biofeedback is a mind–body technique and process of healing in which individuals learn to modify their physiology for the purpose of improving physical, mental, emotional and spiritual health.

- Frank et al. (2010)—Biofeedback in medicine: who, when, why and how?
  - *Efficacious for chronic pain, headache (adult)

- Iqbal et al. (2013)—Effect of deep cervical flexor muscles training using pressure biofeedback on pain and disability of school teachers with neck pain.
  - Addition of pressure biofeedback for deep cervical flexor muscle training gave a better result than conventional exercises alone.
Chronic neck pain

- Botox injections
  - Persaud (2013)—Evidence based review of botulinum toxin applications
  - Level 1 evidence (systematic reviews of RCTs or individual RCTs) to show ineffective for chronic neck pain
  - Botox alone is no better than placebo (503 participants) for subacute or chronic neck pain
  - Evidence doesn't support Botox as monotherapy or in combination with any other treatment for subacute or chronic neck pain

- Trigger point injections
  - Days (1996)—Drug therapy for back pain: Which drugs help patients?
  - Lack of firm evidence to support use of trigger point injections (though this study was for acute and chronic low back pain)
  - Peloso (2007)—Medicinal and injection therapies for mechanical neck disorders
  - Muscle relaxants, analgesics and NSAIDs had limited evidence and unclear benefits.
  - Conflicting evidence for effectiveness of psychotropic medications, compared with placebo control, in relieving chronic neck pain

- Medication
  - Deyo (1996)—Drug therapy for back pain: Which drugs help patients?
  - Acetaminophen/NSAIDs may be effective for mild/moderate pain
  - Mild opioids or tramadol are reasonable for acute pain, not long-term pain

- Cannabis
  - Nugent et al (2017)—The Effects of Cannabis Among Adults With Chronic Pain and an Overview of Cannabis Harm: A Systematic Review
  - 27 randomized trials and three observational cohort studies, plant-based cannabis use
  - Limited low-strength evidence that cannabis might alleviate neuropathic pain
  - Insufficient evidence for other types of chronic pain (i.e. neck)

- Multimodal care (manipulation, soft tissue, exercise, education)
  - Small benefit at immediate post-treatment and short-term

- Surgical interventions—UpToDate
  - Do not recommend surgical intervention be pursued for refractory axial neck pain in the absence of neurological symptoms, radiculopathy, or myelopathy.
  - Surgery for spondylotic neck pain with radiculopathy symptoms can be helpful for patients who fail conservative measures.
  - Axial neck pain with significant myopathic signs and symptoms warrant spine surgery; consultation and preoperative surgical intervention
  - There are no large randomized trials on which to base treatment recommendations for spondylotic myopathy per UpToDate
  - Cosmic decompression (i.e. laminectomy)
  - McCormick et al (2003)—Cervical spondylotic myelopathy: make the difficult diagnosis, then refer for surgery.
  - Although unsupported by clinical trial data, it is common clinical practice to consider surgical decompression in patients with progressive deterioration and/or a moderate or severe myelopathy.
  - Skidmore (2008)—What’s new in spine surgery
  - Anterior surgery directly decompresses the pathologic lesion, but can be associated with complications such as dysphagia, graft extrusion, and CSF leaks and appear to be associated with higher reoperation rates.
CERVICAL DISCECTOMY (ANTERIOR)
- Medcsikos (2010)—Cervical discectomy for cervical radiculopathy or myelopathy.
- van der Meulen et al. (1999, Spine)—Cervical disc protrusions: a randomized, controlled trial with 3-year follow-up.
- Most patients (90%) were very satisfied or satisfied with the outcome and would decide again for the surgery if this result would be known.
- The following results were reported:
  - At four months, the surgically treated patients showed greater improvement in pain.
  - At one year, there was no significant difference in pain.

CERVICAL MEDIAL BRANCH BLOCKS
- Chagas et al. (2005)—Cervical spondylotic myelopathy: 10 years of prospective outcome analysis of anterior decompression and fusion.
- Most patients (80.6%) were very satisfied or satisfied with the outcome and would decide again for the surgery if the results were previously known.

CERVICAL FUSION
- Two randomized trials suggested benefit for patients with cervical radiculopathy, with substantial improvement in pain and recovery in approximately 75% of patients.

ANTERIOR CERVICAL DISCECTOMY AND FUSION
- Radin et al. (2015)—Physiotherapy outcomes in cervical radiculopathy patients after surgery: a non-comparative prospective study with a 3-year follow-up.
- Two-year RCT, 43 patients with cervical radiculopathy due to disc disease.
- Assigned anterior cervical discectomy and fusion combined with physical therapy or physical therapy alone.
- There was no significant difference between the groups for any of the outcome measures.
- Neck active range of motion, neck muscle endurance, and hand-related function.

- Glennberg et al. (1994)—Cervical radiculopathy
  - Improved outcome with surgery more likely in patients with radicular pain than those without radicular pain.
  - Did not specify type of surgery though noted taking a disc fusion or anterior discectomy.

CHRONIC FACETOGRAPHIC NECK PAIN
- Cervical medial branch blocks
  - High-quality studies supporting treatment effectiveness are not available.
  - A randomized trial of 120 subjects compared medial branch blocks with steroid and anesthetic with anesthetic alone for the treatment of facet syndrome and found improvement at 14 to 16 weeks in both groups, with no difference between groups.

CHRONIC WHIPLASH NECK PAIN
- Supervised general exercise
  - Resende et al. (2014, JBRM)—Exercise for whiplash-associated disorder.
    - Recommended for chronic grades I-II WAD pain, weak recommendation, low-quality evidence.
  - Structured patient education
    - Ullsperger et al. (2014, JBRM)—Exercise for whiplash-associated disorder.
      - Recommended for chronic WAD, weak recommendation, moderate-quality evidence.

- Percutaneous radiofrequency neurotomy (think RFA)
  - While it’s common for providers to recommend percutaneous radiofrequency neurotomy, evidence for its efficacy has been better demonstrated in post-whiplash-related cervicogenic headaches and neck pain.
  - Ellenberg et al. (1994)—Cervical radiculopathy
    - Improved outcome with surgery more likely in patients with radicular pain than those without radicular pain.
    - Did not specify type of surgery though noted taking a disc fusion or anterior discectomy.

- Lord et al. (1996)—Percutaneous radiofrequency neurotomy for chronic cervical zygapophyseal joint pain.
  - A randomized double-blind trial of 101 patients with whiplash injury demonstrated longer-term relief with median time before pain returned to at least 50% of the level prior to the procedure was longer versus control.
  - While it’s common for providers to recommend percutaneous radiofrequency neurotomy evidence for its efficacy has been better demonstrated in post-whiplash-related cervicogenic headaches and neck pain.
Neck pain due to whiplash

- Qigong
    - Benefit for recent-onset and persistent neck pain

- Massage
    - Benefit for recent-onset and persistent neck pain

Non-specific neck pain

- Cervical manipulation
  - Favorable

- Thoracic manipulation
  - Favorable

- Acupuncture
  - Furlan et al (2012)—A systematic review and meta-analysis of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low back pain
    - Unclear (moderate confidence)

- Massage
    - Benefit for recent-onset and persistent neck pain

- Ultrasound
  - Moodley (2002)—The relative effectiveness of spinal manipulation and ultrasound in mechanical pain: pilot study
    - Beneficial for pain though not more beneficial than SMT for disability, short, and medium-term
  - Gross et al (2000)—Physical medicine modalities for mechanical neck disorder
    - Some evidence to support use

- Pulsed electromagnetic field (PEMF)
  - Gross et al (2000)—Physical medicine modalities for mechanical neck disorder
    - Some evidence to support use

- Acupuncture
  - Trinh et al (2016)—Acupuncture for neck disorders
    - Positive, short-term, moderate quality

- Botox
  - Peloso (2007)—Medicinal and injection therapies for mechanical neck disorders
    - There is moderate evidence that Botulinum toxin A is not superior to saline injection for chronic MND.

- Massage
  - Patel (2012)—Massage for Mechanical Neck Disorders
    - No recommendations can be made based on inconclusive evidence due to methodological flaws.

Mechanical neck pain

- Ultrasound
  - Holley et al (2002)—The relative effectiveness of spinal manipulation and ultrasound in mechanical pain: pilot study
    - Beneficial for pain though not more beneficial than SMT for disability, short, and medium-term
  - Gross et al (2000)—Physical medicine modalities for mechanical neck disorder
    - Some evidence to support use

- Acupuncture
  - Trinh et al (2016)—Acupuncture for neck disorders
    - Positive, short-term, moderate quality

- Trigger point injections
  - Peloso (2007)—Medicinal and injection therapies for mechanical neck disorders
    - Sclerosing injection into palpable trigger points appears effective (2 trials) and not superior to placebo with chronic neck pain without radicular symptoms
Myofascial neck pain

- Low level laser therapy
  - Ceccherelli (1989) - Diode laser in cervical myofascial pain: a double blind study versus placebo
  - Benefit in short and medium-term
  - Benefit in short and medium-term

- Acupuncture
  - Trinh et al (2016) - Acupuncture for neck disorders
  - Positive, short-term, moderate quality
  - Treatment should consist of 6 or more visits

- Pulsed electromagnetic field (PEMT)
  - Smania (2003) - Therapeutic effects of peripheral repetitive magnetic stimulation on myofascial pain syndrome
  - Positive short and medium-term benefit

- Trigger point injections
  - Esenyel (2000) - Treatment of Myofascial Pain
    - When combined with neck stretching exercises, ultrasound treatment and trigger point injections were found to be equally effective.

- TENS
  - Kroeling et al (2013) - Electrotherapy for neck pain (Cochrane review)
    - Definitive conclusions could not be drawn due to the lack of quality studies.

Osteoarthritic neck pain

- Low level laser therapy
  - Odak et al (2001) - The clinical efﬁcacy of low-power laser therapy on pain and function in cervical osteoarthritic patients
    - Benefit

- Pulsed electromagnetic field (PEMT)
    - Statistically significant benefit

- Acupuncture
  - Trinh et al (2016) - Acupuncture for neck disorders
    - Results did not favor use
    - Treatment should consist of 6 or more visits

Cervicogenic headaches

- Haas (2010) - Dose Response of SMT for Chronic Cervicogenic Headaches
  - 0 to 4 visits was the point where SMT was no better than control
  - Dose effect at these treatment levels cannot be ruled out
  - Higher quality trials showed SMT to be superior to deep massage, placebo and no treatment at all
  - Dose effects were modest with the exception of higher dose SMT over lower dose SMT - statistically significant intervention effect for disability
  - Advantage for SMT in pain and disability consistently reached clinical importance only for the higher dose of 16 treatments.
  - The study did not have the power to reach statistical significance

- Haas (2018) - Dose-response and efficacy of SMT for care of cervicogenic headache: a dual-center randomized control trial
  - 6 to 12, 18
  - Higher for 6 weeks
  - Increased for 6 light massage center orders where SMT not performed
  - Comparison between SMT and control measured at 4, 12, 20, 29, and 36 weeks
  - There was a strong dose-response relationship between SMT visits and days with cervicogenic headache (C-GH)
  - Mean (95% CI) number of days with headache in C-GH
    - Mean (95% CI) number of days with headache in control
  - The results were not determined
  - CSS (Headache intensity: 0-10) of highest and most effective dose of SMT visit 1-5 days symptom less than control
  - CSS for headache intensity showed no important improvement over effects of dose.
Tension headaches

- Acupuncture
  - Furlan et al. (2012)—A systematic review and meta-analyses of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low back pain. Positive

- Cervical manipulation/mobilization
  - Bronfort et al. (2010)—Effectiveness of manual therapies the UK evidence report. Favorable

- Biofeedback
  - Nestoriuc et al. (2008)—Biofeedback treatment for headache disorders: a comprehensive efficacy review. Biofeedback more effective than waiting list controls for migraine and tension-type headache. Greatest impact was on headache frequency

Migraine headaches

- Definition—Mayo Clinic

- Cervical manipulation/mobilization
  - Bronfort et al. (2010)—Effectiveness of manual therapies the UK evidence report. Positive

- Massage
  - Bronfort et al. (2010)—Effectiveness of manual therapies the UK evidence report. Favorable

- Acupuncture
  - Furlan et al. (2012)—A systematic review and meta-analyses of efficacy, cost-effectiveness, and safety of selected complementary and alternative medicine for neck and low back pain. Positive (high confidence)

Migraine headaches

- Medication
    - Acetaminophen, aspirin, caffeine—first line for migraines, high-quality evidence
    - NSAIDs—first line for migraines, quality of evidence undetermined
    - Triptans—moderate to severe migraines, high-quality evidence
    - Butorphanol nasal spray—moderate to severe migraines, high-quality evidence
    - Opiates—moderate to severe migraines, high-quality evidence
    - Naproxen sodium—high-quality evidence

Non-specific headaches

- Cervical mobilization
  - Bronfort et al. (2010)—Effectiveness of manual therapies the UK evidence report. Favorable

- Biofeedback
  - Frank et al. (2010)—Biofeedback in medicine: who, when, why and how?
    - Biofeedback is a mind-body technique and process of healing in which individuals learn how to modify their physiology for the purpose of improving physical, mental, emotional and spiritual health.
    - *Efficacious for chronic pain, headache (adult)*

Chronic headaches

- Mindfulness-based stress reduction
  - Bakhshani et al. (2015)—The Effectiveness of Mindfulness-Based Stress Reduction on Perceived Pain Intensity and Quality of Life in Patients with Chronic Headache.
    - Significant improvement of pain in the intervention group compared with the control group.
    - And can be used in combination with other therapies such as pharmacotherapy.
BMI and Neck pain

Seaman (2013)—Body Mass Index and Musculoskeletal Pain: Is There a Connection?
- "Prevalence of neck pain is higher in patients with metabolic syndromes."

- Metabolic syndrome — increased blood pressure, high blood sugar, excess fat around waist, abnormal cholesterol or triglycerides

Lund Nilsen (Aug 2011)—Physical Exercise, Body Mass Index and Risk of Chronic Pain in the Low Back and Neck/Shoulders
- "Obese men and women had an approximately 20% increased risk of chronic pain in both the low back and the neck/shoulders."

Case Study

59 yo female
- 28-year history of RA, managed medically
- Left-sided lower neck pain (8/10) over trapezius, occipital headache (6/10)
- Aggravated by walking, improved with heat

Examination
- Notable pain and diminished ROM w/extension, + left max cervical compression
- Motor, sensory, reflex intact
- Bowel/bladder intact, no UMN signs
- X-ray: spondylolisthesis C4-C7, DDD, no significant pathology

Case Study

- 15 months prior involved in MVA, hit driver side front quarter panel
- Multiple fractures: left sacrum and acetabulum, eight left-sided ribs, right hand and wrist, left glenoid and C7 left facet
- Immediate epidural hematoma from C2 to T5 w/abnormal signal intensity

Case Study

- Patient had previously been seen in this clinic
- Pre- (3 months prior) and post-MVA images displayed 6 to 7 (1) change in atlantoaxial instability
- Additional C4 traumatic spondylolisthesis
- C4-T1 laminectomy to evacuate hematoma

Case Study

- Based on the information presented, what else might you want to know?
- How would you treat this patient given your experience, the literature regarding cervical pain treatment options, and the patient’s history/exam?
Case Study

Treatment
- No cervical spine treatment was rendered at that time or any point thereafter
- Instrument-assisted manipulation - Ultralign - upper and mid-thoracic spine
- Instrument-assisted soft tissue manipulation upper and mid-thoracic musculature
- Postural education
  - Scapular retractions
  - Thoracic extension exercises

Contraindications/Special Considerations
- Rheumatoid Arthritis
- Down Syndrome
- Ankylosing spondylitis
- Psoriatic arthritis
- Multiple sclerosis
- Spinal cord injury
- Traumatic brain injury
- Parkinson's
- Moderate to severe central canal stenosis
- Hardware in cervical spine

Complicating factors
- Sexual trauma
- Polypharmacy
- Homelessness/income insecurity
- Mental health
- Fear avoidance behavior
  - Hurt vs harm, motivational interviewing
- Catastrophizing
  - Feelings of helplessness, active rumination, and excessive magnification of symptoms

Patient Education
- UWS CSPE Protocol (2017)
  - Patient education is extremely valuable to empower the patient to manage their own health.
  - Basic anatomy
  - Postural advice
  - Practical demonstrations with instructions for lifting, pulling, pushing, and other ADLs
  - Computer placement/desk organization
  - Address fear avoidance behavior
    - Explain difference between hurt (i.e., discomfort/pain associated with ADL) and harm
      (i.e., actual tissue damage and worsening of the condition)

Summary: Acute neck pain
- Effective
  - Cervical and thoracic spinal manipulation
  - Home exercise and advice
  - Acupuncture
  - Medication (NSAIDs, acetylsalicylic acid) may be effective for acute/acute pain
  - Medication (NSAIDs) for chronic pain manageable
  - PEMF and low level laser therapy (for myofascial and osteoarthritic pain)
- Ineffective/Uncertain
  - Trigger Point Injections
  - TENS
  - Ultrasound
Summary: Acute neck pain with radiculopathy

- **Effective**
  - Supervised graded strengthening exercises
- **Ineffective/Uncertain**
  - SMT
  - Low-level laser therapy
  - Traction
  - Cervical collar

Summary: Subacute neck pain

- **Effective**
  - Thoracic SMT
  - Cognitive behavioral therapy
  - Pulsed electromagnetic field therapy
- **Ineffective/Uncertain**
  - Botox injections

Summary: Chronic neck pain

- **Effective**
  - Cervical and thoracic SMT
  - Supervised and home exercise with advice
  - Yoga/Qigong
  - Acupuncture
  - Massage
  - CBT
  - NSAIDs
  - Cervical collar
  - Radiofrequency neurotomy
- **Ineffective/Uncertain**
  - TENS
  - Low-level laser therapy
  - Traction
  - Botox or trigger point injections
  - Opiates
  - Cannabidiol
  - Cervical branch block

Summary: Chronic neck pain with radiculopathy

- **Effective**
  - Cervical SMT
  - Exercise
  - Cervical epidural steroid injection (short-term relief)
- **Ineffective/Uncertain**
  - Traction
  - Surgical interventions such as disc decompression and fusion

Summary: Whiplash related pain

- **Effective**
  - Multimodal–SMT, soft tissue, exercise, education
  - Medication—methylprednisolone within 8 hours of acute whiplash
  - Supervised exercise, general education
  - Neck/adjacent radiodensity neurotomy (headache/neck pain)
  - Gliding (acute and chronic)
  - Massage (acute and chronic)
- **Ineffective/Uncertain**
  - Cervical collar
  - Mold heat (in absence of radiculopathy)
  - Electronic spine bar (in absence of radiculopathy)
  - EMS (in absence of radiculopathy)
  - TENS (for chronic)
  - Botox (for chronic)
  - Relaxation therapy (for chronic)
  - Traction

Summary—Headaches

- **Summary**
  - Cervical SMT appears to produce positive results for cervicogenic headaches
  - Acupuncture and biofeedback beneficial for tension type headaches while SMT appears inconclusive
  - Methylprednisolone, acetaminophen, caffeine, triptans, naproxen sodium, butorphanol, and opiates for migraines
  - Cervical mobilization and biofeedback favorable for non-specific headaches
  - Mindfulness-based stress reduction favorable for chronic headaches
Summary—Headaches

- Cervicogenic
  - Cervical SMT

- Tension-type
  - Acupuncture and biofeedback beneficial
  - SMT unclear effects

- Migraines
  - NSAIDs
  - Acetaminophen
  - Caffeine
  - Triptans
  - Naproxen sodium
  - Butorphanol
  - Opiates

- Non-specific
  - Cervical mobilization
  - Biofeedback

- Chronic
  - Mindfulness-based stress reduction

Questions?
https://me.me/i/could-you-clarify-imalittle-fully-see-more-funny-pictures-at-3057012