# Conservative Osteopathic Management of Musculo-Skeletal Pain from Whiplash

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# Lecture Overview

- What is a D.O.?  What are the principles and practices defining osteopathic medicine?
- What is a somatic dysfunction? Examples?
- Whiplash-What Actually Happens? Symptoms? Risk Factors?
- How does a D.O. treat whiplash in a conservatively and effectively?
- Why manual therapy works to help whiplash; Treatment Limitations; Allopathic comparison

# Osteopathic Medicine: DO history

- Developed in the late 1800's alongside allopathic (M.D.) medicine
- Founded by A.T. Still, M.D., who rejected the harsh drug treatments used then for manual medicine
- Still was accepted by the medical community but chose to start his own schools because his holistic philosophy was fundamentally different

# Osteopathic Medicine: DO Defined

- Many D.O.’s practice in typical allopathic settings as surgeons, internists, or primary care settings
- Traditional osteopathic doctors make up about 10% of all those trained and are those who continue to utilize their hands to manually treat patients.

# Osteopathic Medicine: DO Defined

- A D.O. is different than the other therapists because, in the U.S., a D.O. is a medical physician
- Traditional osteopathic doctors use very specific forms of manual medicine, unlike any other manual therapist.
- An important note: A D.O. is not a therapist. When an osteopathic doctor places his or her hands on a patient, he or she is practicing medicine.

# Osteopathic Medicine: DO Principles

- 1) The body is a unit; one cannot treat a part of the body without consider its entirety.
- 2) Structure and function are reciprocally interrelated.
- 3) The body is capable of self-regulation, self-healing, and health maintenance.
- 4) The nervous system controls, influences, and integrates all bodily functions.
- 5) Rational treatment is based on an understanding of these principles.

# Osteopathic Techniques for Joint Pain

- Counterstrain
- indirect balancing
- myofacial release
- cranial therapy
- lymphatic drainage
- facilitated positional release
- HVLA, muscle energy

# D.O. Practices: Direct Techniques

- Direct: Attempt to direct body parts into and often through their physiological and anatomical barrier
- Examples: Muscle Energy, HVLA (High Amplitude, Low Velocity), Stretching, ROM exercises
- Great for Cervical, Mid-Back, Low back somatic dysfunctions (facet joints, intercostal areas, some tight muscles, “frozen” shoulders) in young, healthy patients
- Used by also by Chiropractors, Physical Therapists frequently

# D.O. Practices: Indirect Techniques

- Indirect: Attempt to direct body tissues (muscle, bone, fascia, tendons) away from their anatomic or physiological barrier
- Examples:
  - counterstrain
  - indirect balancing
  - myofacial release
  - cranial therapy

# Somatic Dysfunction: A Cause of Musculoskeletal Pain

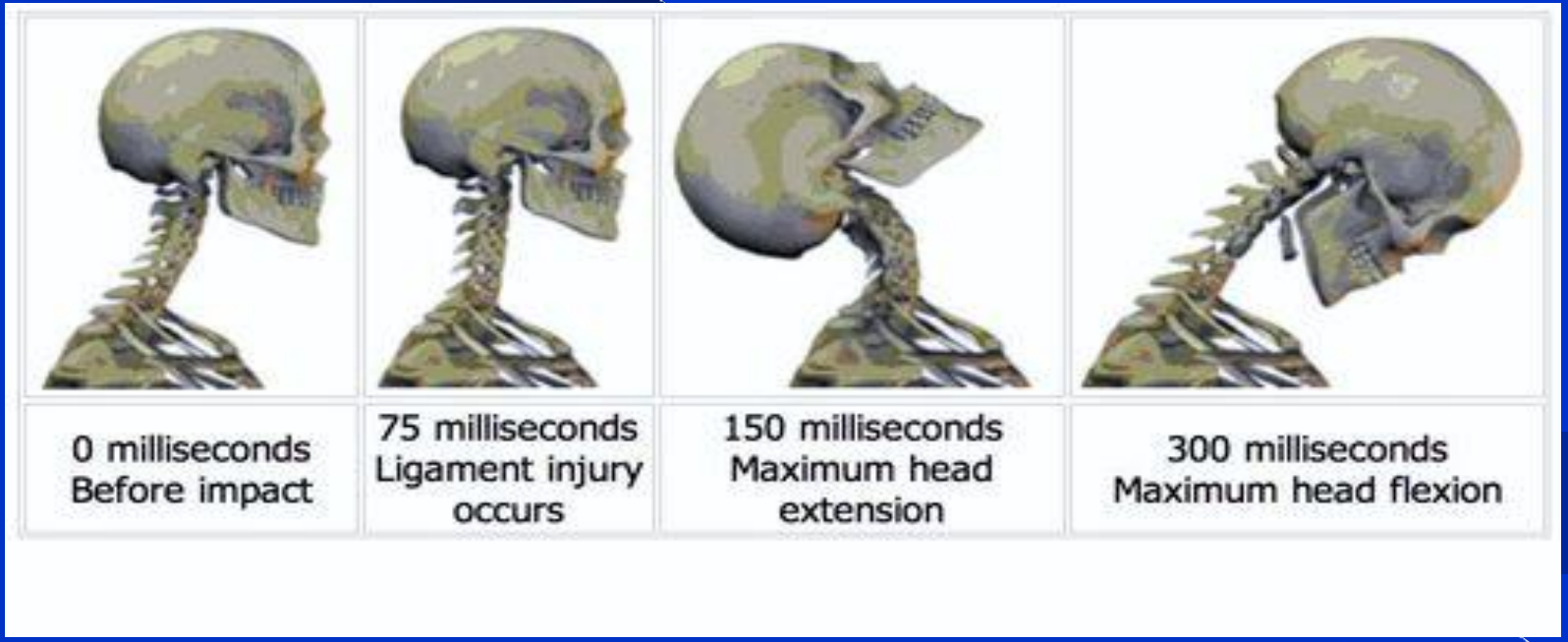
- A “somatic dysfunction” might be defined as any body part dysfunction that presents itself with a restriction of motion, tissue texture changes, asymmetry, or temperature changes
- For example: A knee joint sprain presents with decreased flexibility, boggy feeling over a specific ligament, misalignment, and elevated skin temperature
  - The knee joint motion is most restricted at one point (and also the knee joint is also least restricted at one point)

# Somatic Dysfunction: A Cause of Musculoskeletal Pain

- A somatic dysfunction may be the cause and/or result of ligament laxity (sprain), tendonitis (strain), muscle spasm, joint degeneration, or vertebral misalignment/ fixation/dislocation
- Of Note: “Somatic dysfunctions” are also medically coded as “nonallopathic lesions”, as the diagnosis and treatment of such conditions is reserved for osteopathic physicians, chiropractors, and physical therapists
- Example: Whiplash

# Somatic Dysfunction: Whiplash

"Whiplash" is defined as an injury to the neck caused by a severe jerk to the head as in a motor vehicle accident




http://www.myarizonainjurylawyers.com/wp-content/uploads/2017/01/whiplash.jpg

# Whiplash-What Actually Happens?

- Whiplash results in some or all of following damages to the soft tissue of the neck and upper back as well as the spine:
  - Spine misalignment and malrotation, joint impingement and compression, ligament and tendon stretching (or tearing), muscle tightening (spasm), vertebral discs damage (all of which compromise somatic dysfunctions)

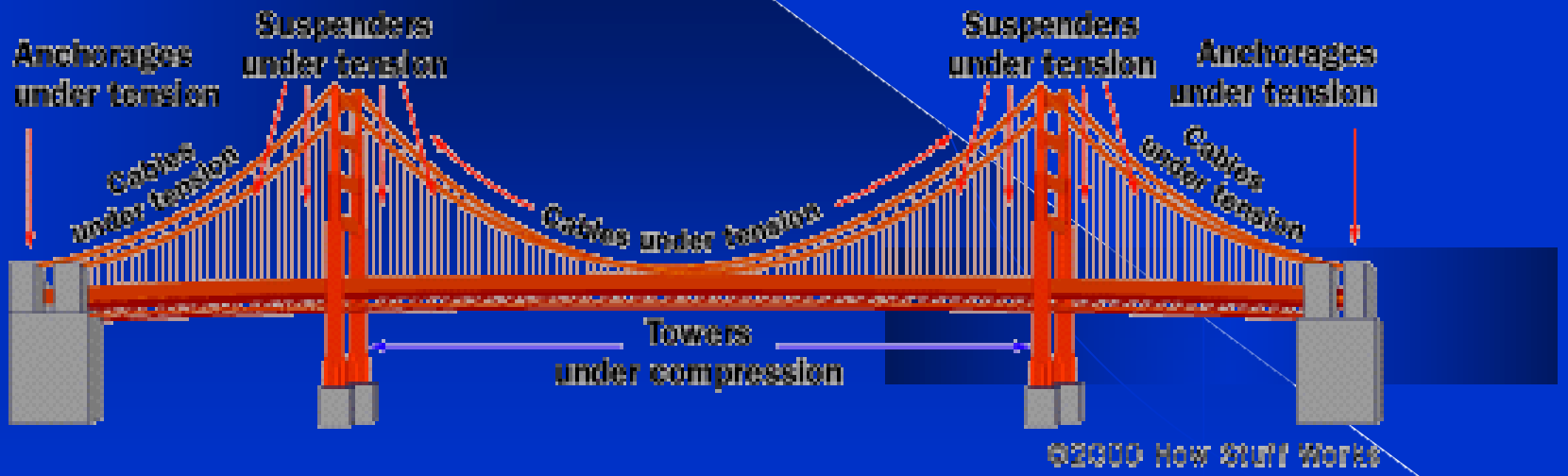
# Whiplash-What Actually Happens?

- One of the best ways to think of the damages to the neck from whiplash with is to think of the neck and back like a suspension bridge

http://wonderopolis.org/_img?img=/wp-content/uploads/2016/06/dreamstime_xl_27206428_(Custom)_1.jpg&transform=resizeCrop,720,450

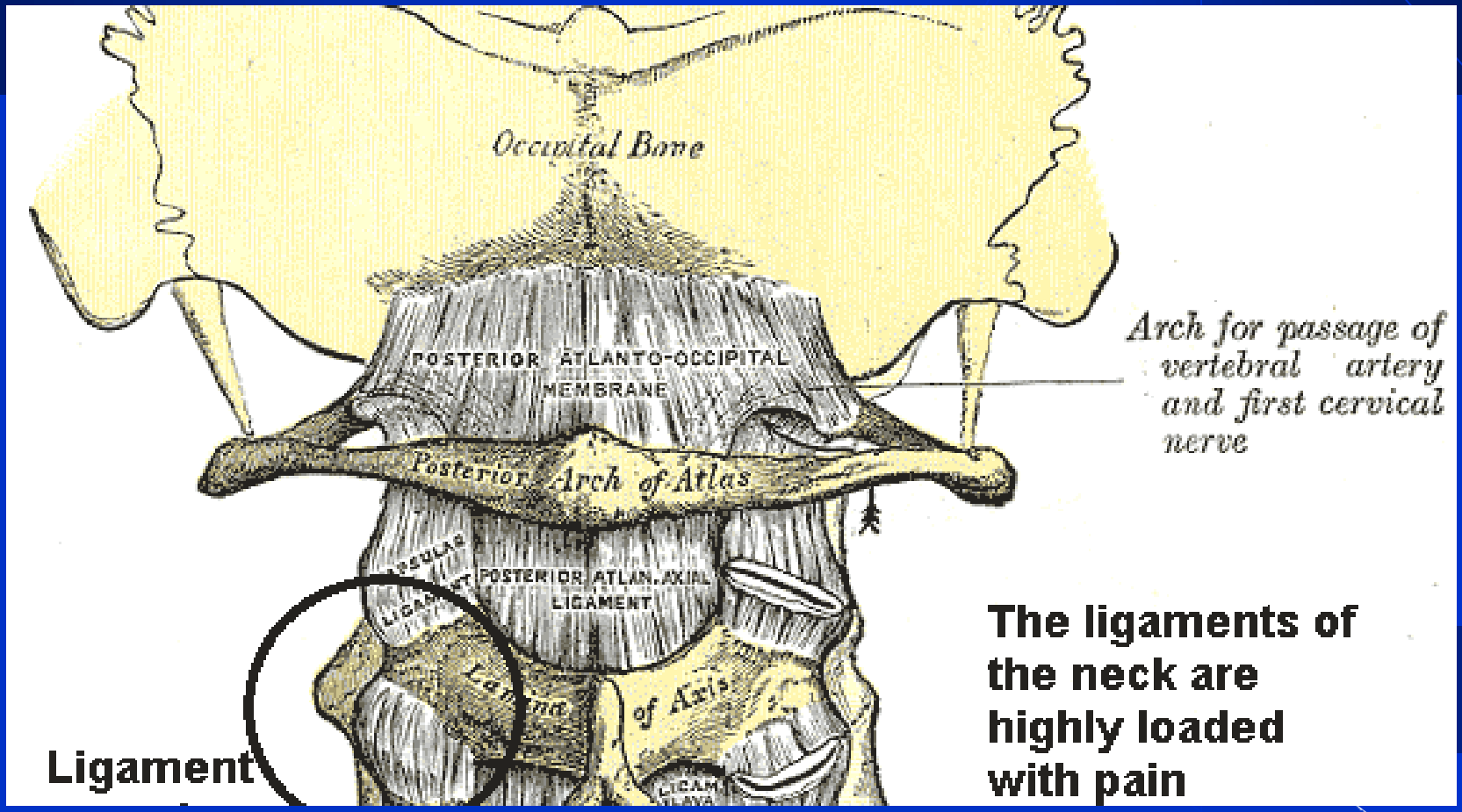
# Whiplash-What Actually Happens?

- The “cables” of the bridge are the ligaments, tendons, and muscles of the neck and upper back
- The “bridge” itself is comprised of the vertebral bodies, the joints, and discs



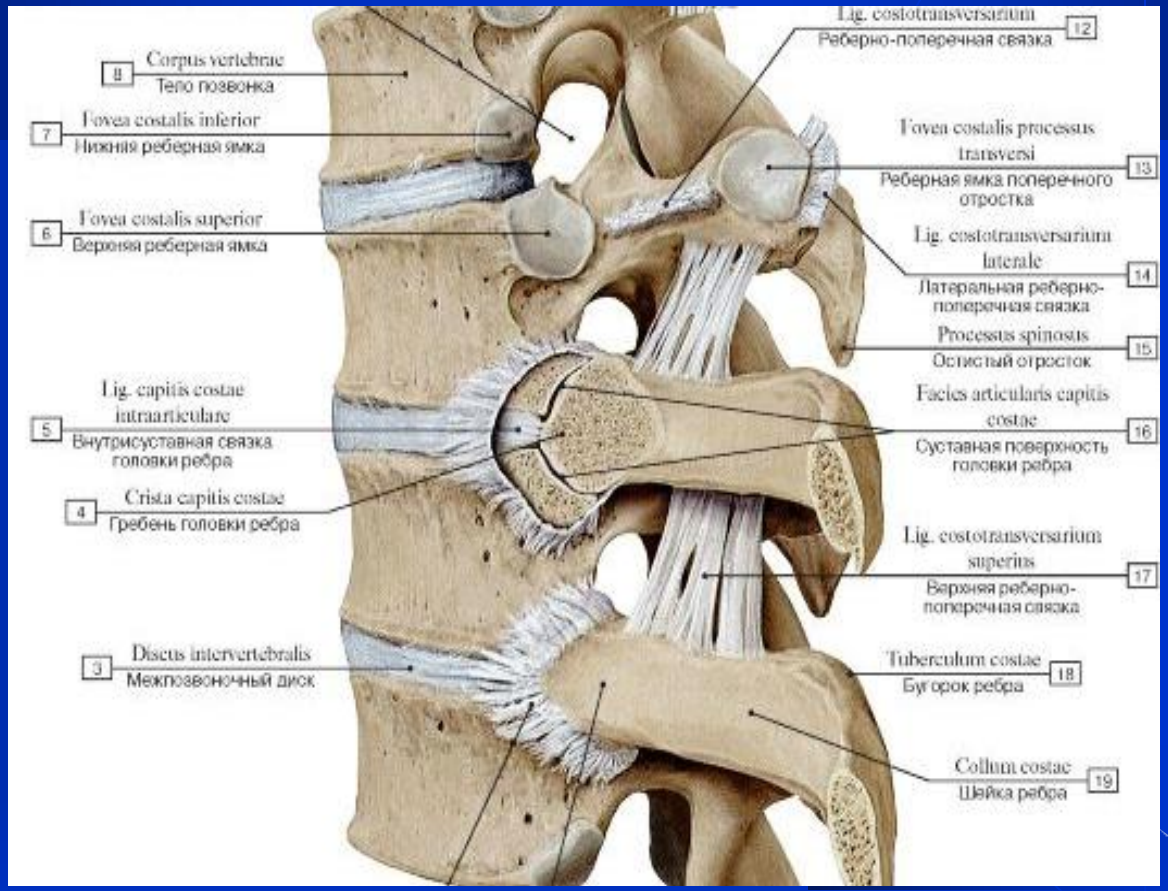

http://s.hswstatic.com/gif/bridge-suspension.gif

# Whiplash: Neck Ligament Overextension, Inflammation, and Tearing




http://www.chiropracticanchorage.com/wp-content/uploads/2012/10/neck_ligament_pain.png

# Whiplash: Tendon Overextension, Inflammation, and Tearing

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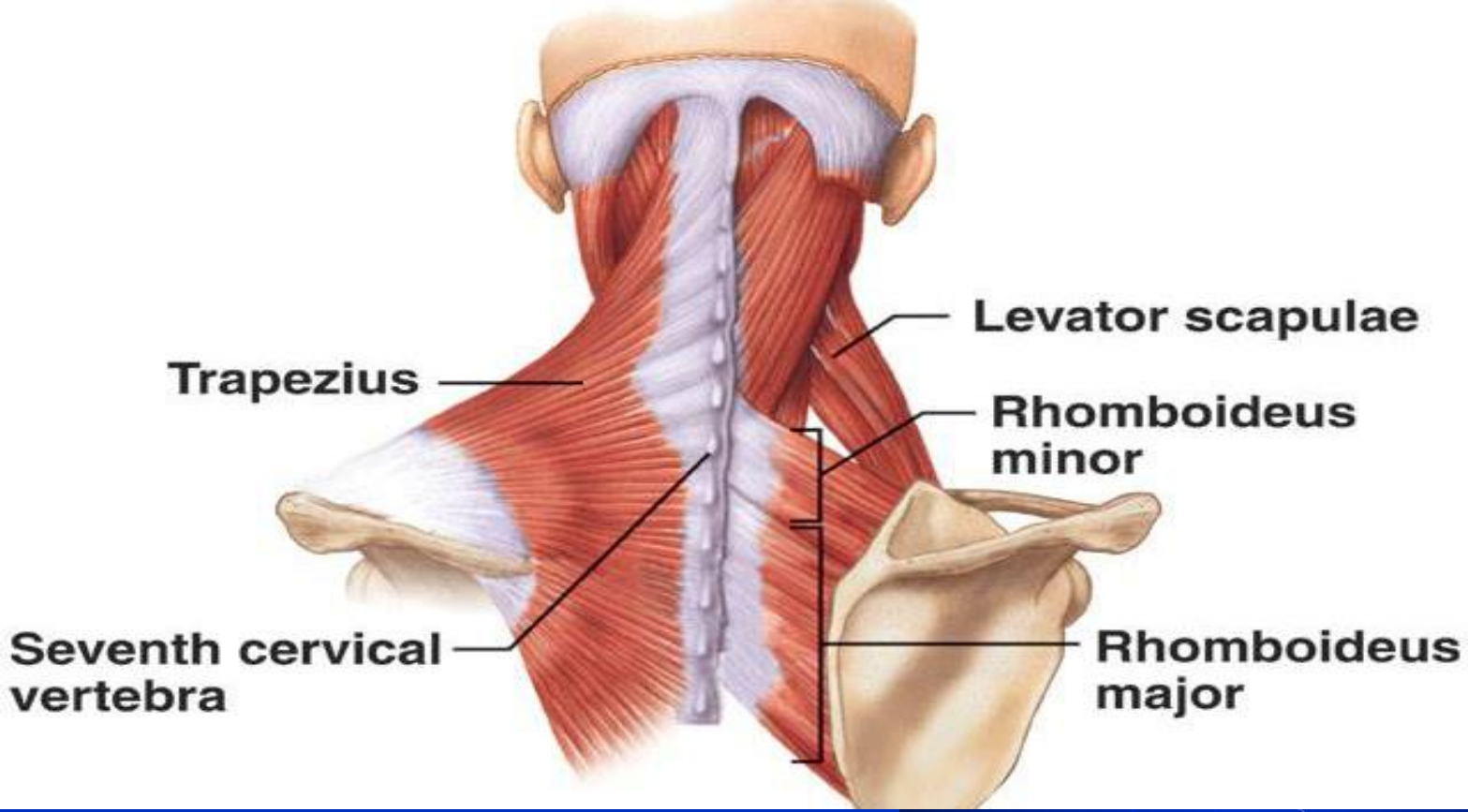
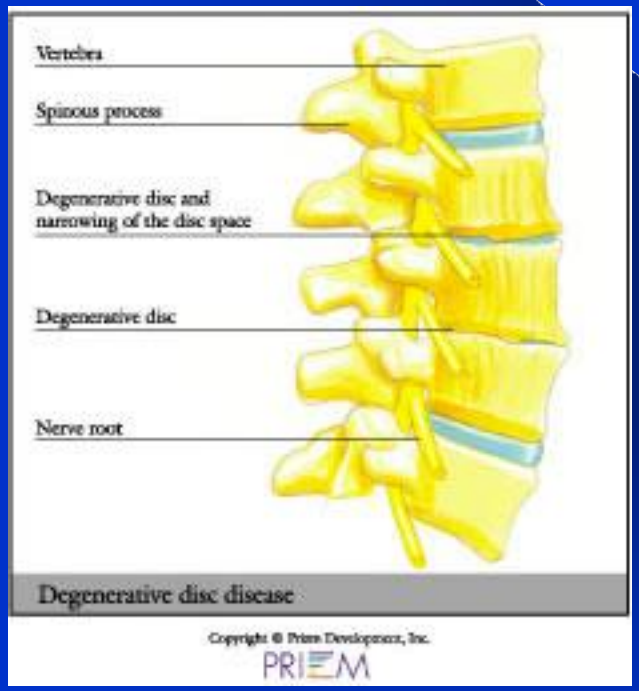
# Whiplash: Muscle Overextension, Inflammation, and Spasm




https://www.peakphysicaltherapy.net/images/neck-muscles-back-view.jpg

# Whiplash: Can Lead to Permanent Damage: Disc Degeneration or Herniation

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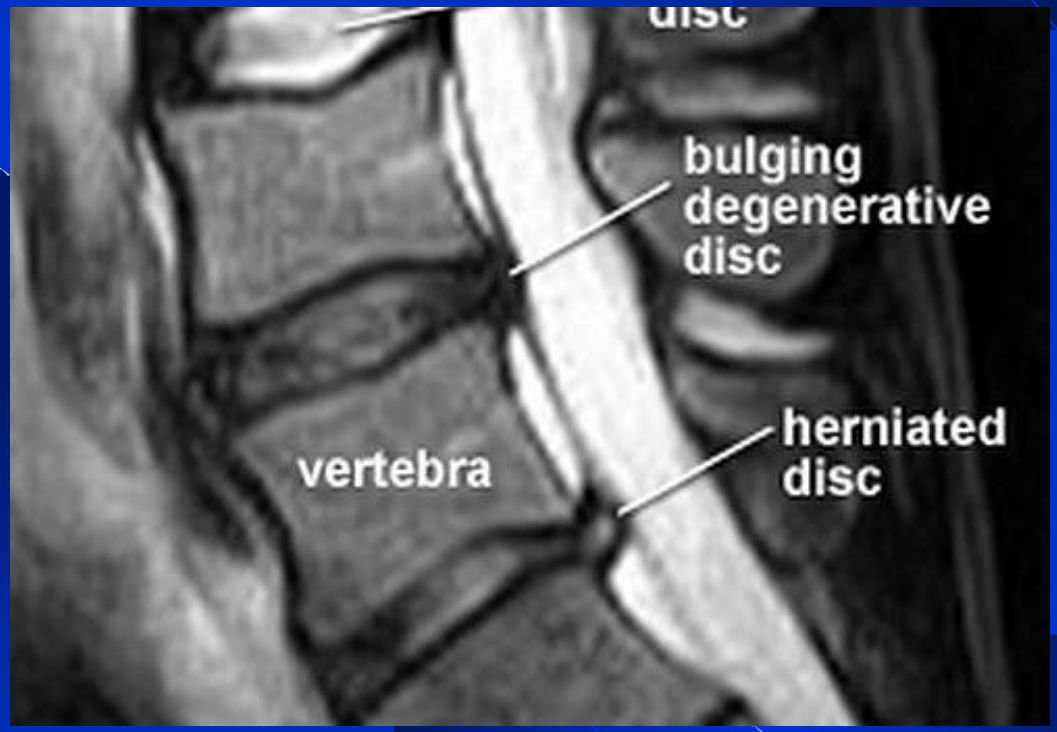



http://www.homeopathy4health.ie/H4H%20Monographs%20%20133C%20(Herniated%20disc).jpg

# Whiplash: Patient Symptoms

- Neck pain and stiffness
- Headaches
- Upper back pain
- Numbness/pain in the hand and/or arm
- Dizziness, Sleep issues, Fatigue
- Difficulty with concentration, Memory problems, Irritability
- PTSD

# Whiplash: Debilitating Symptoms

http://howellpinckneychiropractor.com/wp-content/uploads/2016/11/neck-pain-1-300x213.jpg

# Whiplash: Risk Factors

- Hypermobile ligaments and tendons due to genetic inheritance (mixed connective tissue defects, collagen deficit disorders)
  - Example: “Double Jointed Individuals
- Hypermobile ligaments due to hormones present in pregnancy
  - Example: Relaxin hormone (relaxes pelvic and other ligaments in a pregnant woman to aid vaginal delivery)

# Whiplash: Risk Factors

- Hypermobile ligaments due to environmental or lifestyle factors
  - Smokers
  - Poor nutrition (inadequate vitamins, particularly vitamin C and protein)
  - Excessive exercise or daily activity strain (working on a computer, lifting, biking)
  - Secondary injury

# Whiplash: Osteopathic Treatment

- Osteopathic medical consultation includes a patient history, review of systems, physical exam, diagnosis and treatment.
- A diagnosis of whiplash is often with associated conditions (ligament laxity, somatic dysfunction, muscle spasm, cervicalgia)
- If the patient has significant radicular pain, tingling, or muscle weakness in shoulder, arm, or fingers, an MRI is ordered

# Whiplash: Osteopathic Treatment

- If patient has significant pain, misalignment, or other tissue texture changes, osteopathic manual therapy (OMT) is performed in a gentle fashion
- Patient is prescribed rest, ice, and pain medications (and, if needed muscle relaxants) in the short term
- Patient is asked to return to the clinic for reassessment and more manual therapy within 1 week

# Whiplash: Osteopathic Treatment

- Patient is also recommended to other forms of manual therapy as needed including chiropractic, physical therapy, massage, home stretching
- Patient is recommended to counseling or psychiatry if severe, acute stress or PTSD is found; acupuncture may also be recommended for stress reduction
- Patient is advised to seek immediate attention at the ER if acute pain develops or loss of function in neck, hands or arms

# Whiplash: Osteopathic Treatment

- Patient is advised to seek immediate attention at the ER if he or she feels dizzy or loss of consciousness
- Patient is referred to orthopedic specialist and for imaging (Xray, CT, or MRI) if condition worsens

# Whiplash: Why Manual Therapy Helps

- Manual therapy helps to correct the somatic dysfunction component of whiplash in the following manner
  - Alignment of the ligamentous, tendon, joint, and vertebral structures of the C-spine
  - Reduction of impingement in those structures
  - Improved blood flow and nourishment to injured muscles and tendons
  - Relaxation in tone of the affected hypertonic muscles; improved tone of the hypotonic muscles

# Whiplash: Why Manual Therapy Helps

- In scientific terminology, manual therapy attains measurable results in whiplashed tendons and muscles after treatment
  - Less nociceptor activity (as measured by stretch reflex amplitude)
  - Less tender point sensitivity

http://www.jaoa.org/cgi/content/full/106/9/537

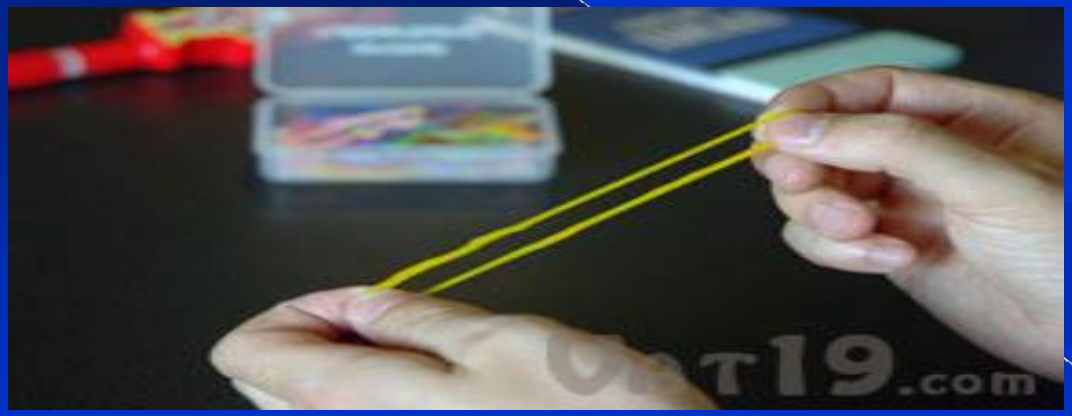
http://linkinghub.elsevier.com/retrieve/pii/S1479235406000733

# Whiplash: Treatment Limitations

- Manual Therapy may improve the condition of whiplash but some patients may never return to complete tissue integrity
- These patients have ligaments, tendons, and joints that have been injured beyond the body's ability to repair them, under natural everyday circumstances

# Whiplash: Treatment Limitations

- The ligaments and tendons of these types patients are like rubber bands– once stretched out, they will never return to  the same tensile strength (but will remain damaged permanently, never able to support the body as well as before the injury




https://images.vat19.com/zoo-animal-rubber-bands/zoo-animal-rubber-bands-stretched.jpg

# Whiplash: Treatment Limitations

- These whiplash patients, with unrelenting pain, may need continued, extended (often for several years) manual therapy such as that provided by osteopathic physicians, chiropractors, or physical therapists

- Some of these patients will never fully gain recovery from pain fully, but may require lifelong maintenance treatment with manual therapy to maintain an active, productive life--although not completely devoid of pain

# Whiplash: Conclusion

There is no suitable medical alternative to manual therapy for chronic neck pain due to whiplash

"Osteopathic treatment when compared to standard medical treatment helped patients with chronic injuries find pain relief in less visits and less medication"

- http://content.nejm.org/cgi/content/abstract/341/19/1426