

Back to Basics: OMT Workshop

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**Pennsylvania Academy of Family Physicians Foundation &
UPMC 43rd Refresher Course in Family Medicine
CME Conference
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Back to Basics...OMT Workshop

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Disclosures:

Speakers have no disclosures and there are no conflicts of interest.

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PAFP/Refresher Course in Family Medicine OMT Review

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Disclosures

- The speakers have no conflict of interest, financial agreement, or working affiliation with any group or organization.

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Goals/Objectives

- By the end of this workshop, you will be able to:
 1. Name at least 3 different categories of OMT treatments
 2. Perform manual medicine/OMT techniques to help treat common outpatient conditions
 3. Perform manual medicine/OMT techniques to help treat neck pain

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Workshop Agenda

- Introductions (5 min)
- Brief review of Osteopathic Medicine history and principles (10 min)
- Review types of treatments (5 min)
- Review of common outpatient conditions with technique practice (40 minutes)
- Review of neck pain with technique practice (20 minutes)
- Basic billing/documentation (5 min)
- Wrap-Up/Questions (5 min)

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BRIEF REVIEW OF OSTEOPATHIC MEDICINE HISTORY AND PRINCIPLES

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What is Osteopathic Medicine

- A unique and comprehensive approach
- More than just manipulation
- Congruent with current biopsychosocial model
- Not chiropractic with prescribing rights
- One of the fastest growing health professions
- 31 DO Medical Schools (more than 20% of medical students in the US)
- 45 Locations
- 30 States
- 70,000 + DO's in the US
- PA with most Osteopathic Physicians (7,260 in 2012)

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Distinctive Philosophy of Medicine

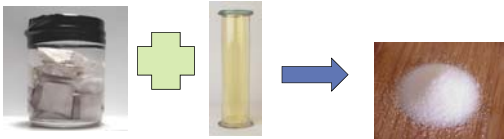
1. The unity of the body
2. The body's inherent self-healing ability
3. The somatic component of disease
4. The relationship of structure and function
5. The use of manual therapy



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UNITY OF THE BODY

- Basic principles = body is a unit and functions as such. Reductionist approach poses difficulties in evaluating / treating and healing *people*
- Can you describe /predict the characteristics of table salt by examining Na metal and Cl gas?



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HEALING POWER OF BODY

- Natural state of the body is health
- Nature has provided all things necessary for maintenance of health
- Body has inherent capacity to maintain health and recover from disease

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STRUCTURE AND FUNCTION INTERRELATIONSHIP

- Virchow 18th century
- Structure governs and influences function, and vice-versa



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MANUAL THERAPY (MANIPULATION)

- Method by which physician can evaluate and treat dysfunction of the musculoskeletal system
- Such treatment influences local and distant tissues
- Macroscopic and microscopic level
- Restoration / optimization of tissue function maintains wellness and assists in recovery from disease

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Historical perspectives: manual medicine

- Ancient Thailand (2000 B.C.) 
- Ancient Egypt 
- Hippocrates: described traction and leverage techniques 
- Lost through middle ages - Role of plagues?

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Manual medicine history

- Dr. Edward Harrison – London 1780's – large manual medicine practice
- Bonesetting- Gained attention and acknowledgement by Paget and Hood
- 1800's – manual medicine techniques described in U.S.

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Osteopathic Medicine

- Developed by A.T. Still, M.D.(1828 -1917)
- Civil War surgeon
- First proposed tenets in 1874
- Response to his disenchantment with standard medical therapies of the day



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The Basics

- Somatic Dysfunction
 - Found on the osteopathic structural exam
 - Abnormal palpatory findings
 - Restriction affecting joints, muscle, and fascia
 - Can affect blood supply, lymph flow, and nervous function
- Acute
 - Edema, redness, boggy, moist
 - Sharp/severe pain w/ restriction, tender
 - Asymmetry without compensation
- Chronic
 - Cool, dry, ropy
 - Less pain with restriction, burning, achy
 - Asymmetry with compensation

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The Basics

- TART
 - Tissue Texture Change
 - Asymmetry
 - Restriction
 - Tenderness

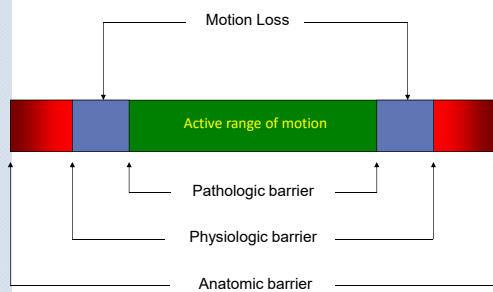


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Restriction

- Physiologic Barrier
 - Active motion
- Anatomic Barrier
 - Passive motion
 - Movement beyond causes injury
- Restrictive (Pathologic) Barrier
 - Before the physiologic barrier

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Structural Exam

- Inspection
- Palpation
 - TART
- Motion Testing

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◦ REVIEW TYPES OF TREATMENTS

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SOMATIC DYSFUNCTION

- Fundamental principle of osteopathic diagnosis
- Found upon osteopathic structural exam
- Involves abnormal palpatory findings of soft tissue and/or joint structures

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INTERVENTION (OMT)

- 2 basic categories of techniques:
 1. Direct = Barrier is engaged directly
 2. Indirect = Energy is directed away from barrier
- “ unstick the drawer “

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COMMONLY USED TECHNIQUES

1. Soft tissue / myofascial release
2. Counterstrain
3. Muscle energy
4. Articular
5. High velocity, low amplitude (HVLA)

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When is OMT indicated?

- Most commonly used as primary or adjunctive treatment for musculoskeletal complaints (acute or chronic)
- Mostly axial skeleton, but periphery also
- Headaches
- Fibromyalgia
- TMJ
- Sinus dysfunction
- Improve respiratory function in COPD / Asthma

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CONTRAINDICATIONS

- Absolute : for neck = OA instability as found in RA, Down's
- Relative : for HVLA = osteoporosis, acute injury, elderly, metastases, Pt. fear
- Overall, OMT very safe ; in fact safer than many standard therapies

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SOFT TISSUE

- Energy directed at soft tissues, especially skin, fascia and muscles
- Involves lateral stretching, linear stretching, deep pressure, or separation of muscle origin and insertion.
- Improves fluid (lymph, blood) mobility, stimulates mechanoreceptors = decrease pain,spasm

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COUNTERSTRAIN

- Tenderpoints are identified and monitored
- Pt. is placed in position of maximum comfort
- Gentle focal fingertip pressure applied for 90 seconds
- Theorized to reduce / reset afferent input to spinal cord and cortical centers



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MUSCLE ENERGY

- Active and direct
- Joint placed in restriction of movement
- Patient gently pushes in opposite direction for 3-5 seconds then relaxes
- Physician passively place the joint further into barrier of motion
- Process repeated 3 times

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MYOFASCIAL TECHNIQUES

- Passive techniques
 - Linear stretch
 - Perpendicular stretch
- Direct active
- Indirect active

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◦ REVIEW OF COMMON OUTPATIENT CONDITIONS WITH TECHNIQUE PRACTICE

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TENSION HEADACHE

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RELEVANCE

- Most frequently experienced headache (HA)
- More prevalent in women
- Prevalence: 30 – 80%
- Associated with limited ability to function in more than 40%
- May cause disability and decreased quality of life

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PATHOLOGY

- Very little research has been published on osteopathic treatment
- Relaxation therapies have been shown to be superior to no treatment
- Progressive muscular relaxation exercises
 - Reduce HAs
 - Home-based programs



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RED FLAGS



- Fundamental change or progression in pattern
- First and/or worst
- Abrupt onset of attack
- Awaken out of sleep
- Abnormal PE (general or neuro)
- Neurological symptoms lasting > 1 hour

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RED FLAGS



- New HA in individuals aged < 5 yrs or > 50 yrs
- New HA in patients with cancer, immunosuppression or pregnancy
- Associated with alteration of loss of consciousness
- Triggered by exertion, sex or valsalva maneuver

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ANATOMY

- Suboccipital and upper cervical area are crucial
 - Sensory fibers of the first three cervical vertebrae
 - First cervical nerve provides motor innervation to suboccipital triangle
 - CN 5, 9 and 10 referred pain
 - Three CNs and second (and third) cervical nerve mediate the referral of excessive connective tissue tension in the cervical area

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MUSCLES

- Neck and occiput
 - Strap
 - SCM
 - Trapezius
 - Others
- Temporal bone
 - More than 10 muscles connected here



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EXAM

- Restriction in cervical vertebral motion
- Paravertebral contractures
- Tender points
 - Often a series of tender points along the inferoposterior portion of occiput between theinion and mastoid process

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TREATMENT

- Any form of OMT is appropriate as long as the patient tolerates it
 - Myofascial release
 - Counterstrain
 - Muscle energy
 - Trigger point pressure
 - HVLA
- Soft tissue techniques should precede any direct action techniques

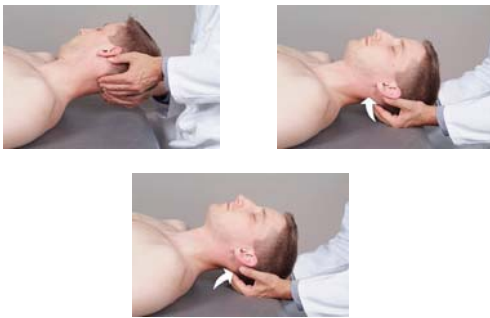
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Myofascial release

- Soft Tissue
- Gentle, sustained pressure

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Suboccipital Release, Supine



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COUNTERSTRAIN

- Indirect and passive
- Tender points found and muscle shortened for 90 seconds
- Returned to normal position passively too
- Tender points anterolateral
- Key is to find point in which the muscle is most relaxed

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Muscle Energy

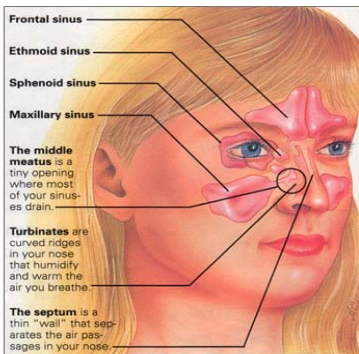
- Active and direct
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- Process repeated 3 times

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SINUS TECHNIQUES

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Sinus Anatomy



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Sinus OMT

- Goals:
 - To relieve obstruction and pain
 - Improve venous and lymphatic flow from the area (jugulodigastric node)
 - Effect reflex changes
 - Improve mucociliary clearance

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Sinus OMT

- Indications:
 - Sinusitis
 - URI Symptoms
 - Nasal Congestion
 - Headache
 - Otitis Media
- Relative Contraindications
 - Bacterial infection with temp > 102 degrees

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Treatment Techniques

1. Direct Pressure and “milking”
2. Indirect Pressure
3. Nasal Decongestion
4. Counterstrain Techniques

Position:

- Patient: Supine on table
- Physician: Seated at head of table

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Direct Pressure

- Frontal Sinuses
- Supraorbital Notch
- Maxillary Sinuses
- Temporal Areas



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Other Techniques

- Indirect Pressure: Occiput
- Nasal Decongestion: Bridge of the nose
- Counterstrain: Maxillary, Supraorbital

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• EUSTACIAN TUBE DYSFUNCTION AND OTITIS MEDIA

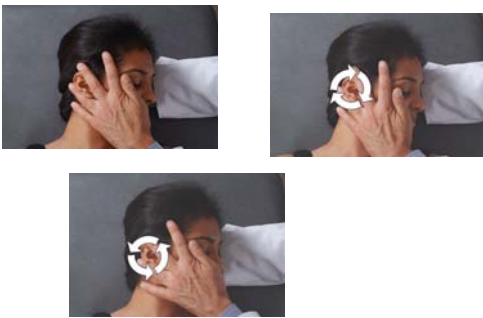
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Eustacian Tube Dysfunction

- Auricular Drainage Technique
 - “V” with fingers
 - Clockwise and counterclockwise massaging

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Auricular Drainage Technique for otitis media/externa



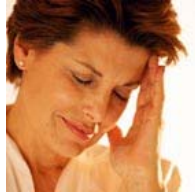
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• TEMPOROMANDIBULAR JOINT (TMJ) DYSFUNCTION

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Temporomandibular joint (TMJ) dysfunction

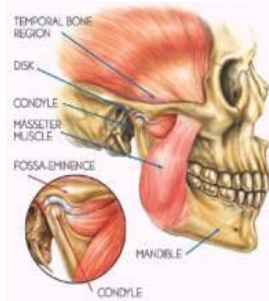
- Scope: 20% of Americans
- 3:1 Females



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TMJ :Anatomy

- Synovial joint w/ fibrocartilaginous disk
- Disk margins merge w/ joint capsule
- Temporomandibular ligament = zygoma to mandible
- 4 muscles of mastication (chewing): Temporalis, Masseter, Medial and Lateral Pterygoid



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TMJ movement:

- Depression/ elevation of jaw via condylar rotation
- Anterior / Posterior glide
- Protraction / Retraction
- Side – to – side glide

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TMJ dysfunction- causes:

- Malocclusion (dentures, teeth)
- Trauma – acute, chronic, repetitive
- Bruxism (nocturnal grinding)
- Mastication muscular imbalance

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Signs / Symptoms of dysfunction

- Clicking/popping
- Pain in front of ear
- Decreased ROM of jaw /pain
- Tenderness to palpation
- Anterior earache
- Headache
- “tightness” of jaw

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TMJ : Office evaluation

1. Facial symmetry
2. Jaw opening / tracking (open & close mouth)
3. Palpate for tenderness /crepitus
4. Dental evaluation

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Manual Medicine techniques:

1. **Muscle energy**

Active (requires patient utilization of force)

Direct (engages the barrier)

Promotes muscle relaxation by activating the golgi tendon reflex

2. **Counterstrain**

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Counterstrain

- Tenderpoints are identified and monitored
- Pt. is placed in position of maximum comfort
- Gentle focal fingertip pressure applied for 90 seconds
- Theorized to reduce / reset afferent input to spinal cord and cortical centers

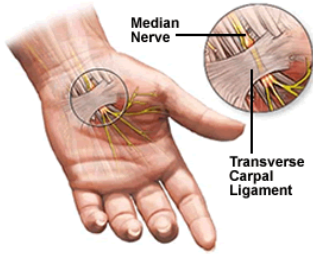
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CARPAL TUNNEL

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Carpal Tunnel

- Incidence in U.S. adults 15-20%



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Carpal Tunnel

Myofascial Wrist Retinaculum Release

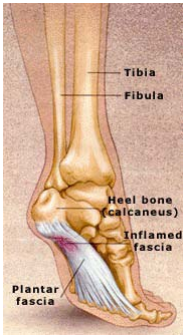


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° PLANTAR FASCIITIS

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Plantar Fasciitis



Myofascial release of plantar fascia



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• SHOULDER PAIN

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Articulatory

- Low velocity, high amplitude
- Treats dysfunctional joint
- Full range of motion
- Goal to increase mobility and range of motion

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Shoulder Pain

- Spencer Technique
 - Useful when restriction or fibrosis has developed in soft tissue
 - Early adhesive capsulitis
 - Healed fractures
 - Anything causing restrictions in glenohumeral motion

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Spencer Technique

- Used for both evaluation and treatment
- Can combine with muscle energy to treat
- 7 motions
- Physician uses cephalad hand to stabilize clavicle and scapula against thorax while using caudal hand to introduce the motions
- Patient lays on unaffected side

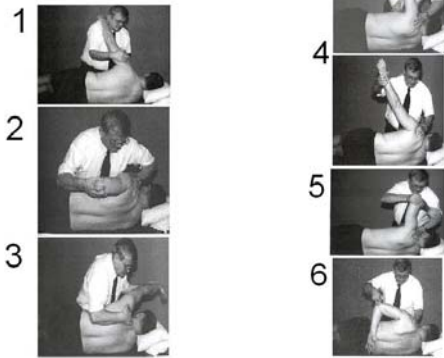
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7 Stages of Spencer

1. Extension
2. Flexion
3. Circumduction with Compression
4. Circumduction with Traction
5. Abduction
6. Internal Rotation
7. Stretching Tissues and Pumping Fluids with Arm Extended

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7 Stages of Spencer

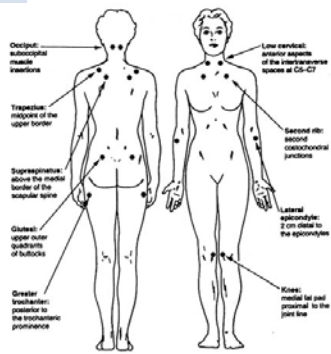


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FIBROMYALGIA

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Fibromyalgia



18 Tenderpoints

- Counterstrain

Fibromyalgia Tender Points
General locations of the 18 tender points that make up the criteria for identifying fibromyalgia.

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BACK PAIN

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Differential Dx

- Mechanical low back pain 97%:
 - Lumbar strain 70%
 - Degenerative discs and facets 10%
 - Herniated discs 4%
 - spinal stenosis 3%

Recent studies¹ showed in patient's with low back pain:

85% had evidence of abnormality in the areas of the psoas and quadratus lumborum based on Functional MRI

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Osteopathic Exam Order

1. Seated/ Standing flexion test
2. Sacral dysfunction
3. 'TART' paraspinal musculature and quadratus lumborum
4. Psoas restriction
5. Piriformis restriction
6. Innominate/ Iliosacral dysfunction
7. Segmental motion testing L1-L5

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Back Pain

- Soft Tissue Techniques
- Linear Stretch



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NECK PAIN

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Motion and Mechanics

- OA
 - Motion of occipital condyles on the atlas (C1)
 - Flexion, Extension
 - Sidebending and rotation to OPPOSITE sides
 - Test with translation
- AA
 - Motion of C1 on C2
 - Rotation
 - Test flexed 45 degrees
- C2-C7
 - Both Flex/Ext and Rotation
 - Sidebending and rotation to SAME side

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Typical Cervical Motion

- Flexion and Extension
- Upper Cervicals- Rotational component dominates
- Lower Cervicals- Side bending component dominates



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Naming Somatic Dysfunction

- Named for freedom/ease of motion
- Fryette's laws I and II do NOT apply to cervical vertebrae
- OA sidebending and rotation to opposite sides with flex/ext ($FR_R S_L$)
- AA rotation only
- C2-C7
 - Sidebend and rotate toward same side

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Common Causes of Neck Pain

- Systemic Dz
 - RA, spondyloarthritis, PMR, bone mets
- DJD #1
- Cervical Strain
- Spondylosis
 - Correlation b/t degree of x-ray change and severity of pain is poor
- Discogenic pain
- Whiplash
- Myofascial pain

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Radiculopathy

- Spurling Test
 - Ext/Sidebend
 - + sx in ipsilateral arm



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Non-Spinal Causes of Neck Pain

- Thoracic outlet syndrome
- Herpes zoster
- Diabetic neuropathy
- Other
 - Vascular
 - Cardiac
 - Infection
 - Referred shoulder pain
 - Neurologic

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“Red Flags” for Neck Pain



- Older patient w/ associated headache, shoulder/hip girdle pain, vision sx
 - Rheum- PMR, giant cell arteritis
- H/o f/c, unexplained weight loss, immunosuppression, CA, IVDA
 - Tumor or infection
- With Neuro sx (arm clumsiness, gait problems, bowel/bladder, Babinski's)
 - Cervical myelopathy

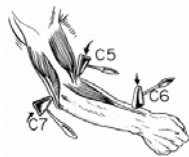
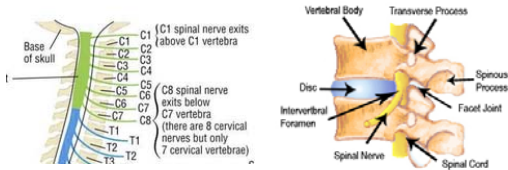
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“Red Flags” for Neck Pain

- Shock-like paresthesia w/ neck flexion (Lhermitte’s phenomenon)
 - Cord compression
 - Midline disc herniation
 - Spondylosis
 - Intramedullary pathology (MS plaque)
- Anterior neck pain
 - Non-spinal causes
- Trauma hx

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Cervical Nerve Roots



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Supporting Evidence

- Strain-counterstrain decreased pain ($p=.014$) vs. sham in patients with cervical tenderpoints²
- Systematic review³
 - Mobilization, manipulation and soft tissue techniques decreased pain and improved satisfaction vs. short wave diathermy
 - Tx + advice/exercise improved global perceived effect and satisfaction vs. advice/exercise alone for acute neck pain
- Whiplash study⁴ – clinically relevant and statistically significant improvement in Neck Pain and Disability Scale w/ osteopathic treatment period vs. without
 - 37% improvement, including both mental and physical components

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OMM Techniques

- Soft Tissue/Myofascial Release
- Muscle Energy
- Counterstrain
 - Tenderpoints differ from trigger points in that tenderpoints don't radiate pain elsewhere when compressed
- HVLA
- Lymphatic
- Chapman's reflex inhibition
- Facilitated Positional Release
- Craniosacral

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Treatment Order Approach

- In general, treat more centrally first
 - Thoracic prior to cervical
 - Thoracic prior to ribs
 - Axial before extremities
- Cranial before other treatments

- If acute issue, start peripherally

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Cervical Spine Practice

- Structural Exam
- OA Release
- Soft Tissue Techniques
- Muscle Energy
- Counterstrain

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Cervical Structural Exam Practice

- OA
 - Motion of occipital condyles on the atlas (C1)
 - Flexion, Extension
 - Sidebending and rotation to OPPOSITE sides
 - Test with translation
- AA
 - Motion of C1 on C2
 - Rotation
 - Test flexed 45 degrees
- C2-C7
 - Both Flex/Ext and Rotation
 - Sidebending and rotation to SAME side

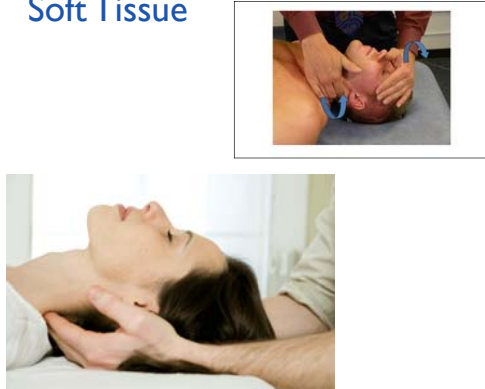
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Suboccipital Release



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Soft Tissue



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Muscle Energy for AA Practice



- Rotate to the barrier
- Patient isometrically rotates away

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Counterstrain

- Tenderpoints are identified and monitored
- Pt. is placed in position of maximum comfort
- Gentle focal fingertip pressure applied for 90 seconds

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Billing

- E&M
 - Ex. 99213- office visit established patient
- ICD-9
 - Ex. 723.1 Neck Pain
 - Ex. 739.1- somatic dysfunction of cervical region
- .25 modifier
 - Additional procedure
- CPT
 - OMT procedure (based upon number of regions treated)

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Useful Resources

- Channell, MK, Mason DC. The 5-Minute Osteopathic Manipulative Medicine Consult.
- ACOFP DO OMT app for smartphones



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