

Rina Chabra, DO

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► Dr. Chabra has provided no disclosures.

- ▶ Review the pathophysiology of asthma
- ▶ Discuss staging and management of asthma
- ▶ Summarize new guidelines in management and self management of asthma
- ▶ Describe osteopathic principles as they apply to asthma
- ▶ Practice osteopathic techniques for asthma


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Introduction

Asthma:

- ▶ Chronic disease of the lungs
- ▶ Affects adults and children of all ages
- ▶ Characterized by repeated episodes of wheezing, breathlessness, chest tightness, and nighttime or early morning coughing
- ▶ Affects 25.7 million people (including 7.0 million children under age 18)
- ▶ Significant health and economic burden to patients, their families, and society

<https://www.cdc.gov/asthma/asthmafacts.htm>
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Causes

- ▶ Caused by a combination of genetic and environmental factors that interact most often early in life
- ▶ Risk factors include
 - ▶ Genetic factors such as inherited allergies or atopy
 - ▶ Parents who have asthma
 - ▶ Airborne allergens and viral respiratory infections
 - ▶ Other environmental exposures; tobacco smoke, air pollution, occupations and diet

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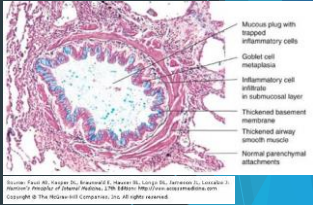
Pathophysiology

- ▶ Inflammatory disorder of the airways
- ▶ Features of asthma include inflammatory cell immunohistopathologic infiltration
 - ▶ Neutrophils-seen especially in patients that have sudden-onset, fatal asthma exacerbations and occupational asthma
 - ▶ Eosinophils
 - ▶ Lymphocytes
 - ▶ Mast cell activation
 - ▶ Epithelial cell injury
- ▶ Airway inflammation contributes to airway hyper responsiveness, airflow limitation, respiratory symptoms, and disease chronicity

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Histopathology

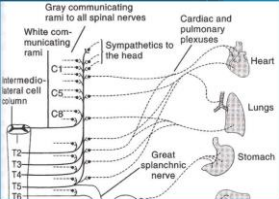
- ▶ **Bronchoconstriction**
 - ▶ airway narrowing and subsequent interference with airflow
- ▶ **Airway edema**
 - ▶ as disease becomes more persistent and inflammation more progressive, other factors further limit airflow
- ▶ **Airway hyperresponsiveness**
 - ▶ an exaggerated bronchoconstriction response to a wide variety of stimuli
- ▶ **Airway remodeling**
 - ▶ airflow limitation may be only partially reversible and permanent structural changes can occur in an airway that is refractory to treatment



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Physiology

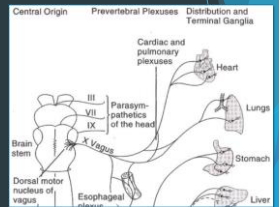
- ▶ Important to understand the innervation behind the mechanism for asthma
- ▶ Sympathetics are supplied by:
 - ▶ Upper thoracic sympathetic chain ganglia T1-T5/6
 - ▶ The viscerosomatic reflexes for the lungs for the sympathetics are located in T1-T4



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Physiology

- ▶ The pulmonary parasympathetics are supplied by the Vagus nerve the fibers originate from midbrain-medulla oblongata
- ▶ Parasympathetic viscerosomatic reflexes for the lungs are located Occiput, C1 and C2



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- ▶ Disease control and severity is determined by the current impairment and also risk of future risk of exacerbations

[illegible]

https://www.nhlbi.nih.gov/sites/default/files/media/docs/asthgedn_1.pdf

- ▶ Airway obstruction can cause shortness of breath
- ▶ Wheezing and chest tightness
- ▶ Prolonged expiratory phase
- ▶ In children-flaring of nostrils, increased heart rate and cyanosis
- ▶ In severe cases-no wheezing auscultated if all the breath sounds are reduced (ominous sign)

- ▶ Viscero-somatic reflexes in T1-T5/6 region bilaterally
- ▶ Somatic dysfunction involving OA-C2
- ▶ Hypertonicity of C3-C5
- ▶ Chapman's reflexes
- ▶ Tissue texture changes to the thoracic area
- ▶ Inhalation Rib dysfunction
- ▶ Restrictive movement of the scapula
- ▶ Edema/Restriction of the thoracic inlet

Treatment-Medications

- ▶ Controller medications are the foundation of care in asthmatic patients
- ▶ **Inhaled corticosteroids** are the preferred controller medication - when used consistently they improve asthma control more than other long-term control medication
 - ▶ Beclomethasone, Budesonide, Fluticasone, Mometasone
 - ▶ improvement in asthma symptoms can be seen in 1-3 weeks; best results in 3 months
- ▶ Combining **long-acting beta2 agonists** and inhaled corticosteroids is effective and safe when add on therapy is needed
 - ▶ Formoterol (usually in combo w/Budesonide), Salmeterol (Fluticasone), Vilanterol (Fluticasone)
 - ▶ have an action of more than 12-24 hours

Treatment-Medications

- ▶ **Leukotriene receptor antagonists** can be used as adjunctive w/ inhaled corticosteroids but for persons >12 years of age addition of long acting- beta 2 agonist is preferred
 - ▶ Zileuton (leukotriene synthesis inhibitor) has been shown to improve peak flows
 - ▶ Long acting Beta2 agonists and Leukotriene modifiers - Montelukast (Singulair), Zafirlukast (Accolate)
- ▶ **Short acting beta2 agonists** should be used for rapid reversal of airflow obstruction and prompt relief of symptoms
 - ▶ Albuterol, levalbuterol and pirbuterol
 - ▶ onset of action of <5 minutes; peaking in 30- 60 minutes; duration 4-6 hours

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Treatment-Medications

- ▶ **Methylxanthines**
 - ▶ Theophylline is most common
 - ▶ acts as bronchodilator in asthma; is non preferred add on
- ▶ **Cromolyn**
 - ▶ decreases bronchospasm through anti-inflammatory effects
- ▶ **Monoclonal antibodies**
 - ▶ Omalizumab (Xolair)
 - ▶ anti IgE antibody should only be used in children >12 and adults with confirmed IgE dependent allergic asthma that is uncontrolled with conventional medications

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Management-Acute exacerbation

- ▶ At home, assess peak flow--if <50-79% of their personal best, then give up to two treatments of 2-6 inhalations of short-acting beta2 agonists 20 minutes apart and then should recheck their peak flow
- ▶ In ED or ambulatory care, goal is correction of severe hypoxemia, reversal of airflow obstruction and reduce of risk of relapse
 - ▶ Multiple doses of inhaled anticholinergics with beta2 agonist improve lung function and decrease hospitalization in school aged children
 - ▶ Intravenous magnesium sulfate has been shown to significantly increase lung function and decrease hospitalization in children
 - ▶ Administration of systemic steroids within one hour of presentation has also shown to decrease hospitalization

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Management-Long term

- ▶ Reduce impairment
- ▶ Reduce risk
- ▶ Assess asthma control to determine if therapy should be adjusted
 - ▶ written asthma plans
 - ▶ proper medication techniques
 - ▶ patient adherence and concerns
 - ▶ Obtain spirometry every 1-2 years
- ▶ Schedule follow up care
- ▶ Select medications that meet patients needs such as those they would comply with

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Management-Long term

- ▶ Develop written asthma action plan; new plan asthma APGAR tool (Activities, Persistent, triGGers, Asthma medications, Response to therapy)
- ▶ Teach patients how to manage their asthma - self monitoring through symptoms or peak flow monitoring
- ▶ Taking medications correctly and educating between controller and fast acting medications
- ▶ Develop written action plan
- ▶ Recommend ways to control exposures to allergens, irritants and pollutants
- ▶ Discussing occupational exposure
- ▶ Making sure if there are smokers at home that they smoke outside the house

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ASTHMA APGAR

1. In the past 2 weeks, how many times did any breathing problems lead to a medical visit with your ACTIVITIES or activities you wanted to do?

None 1 - 2 times 3 or more times

2. How many DAYS in the past 2 weeks did you have shortness of breath, wheezing, chest tightness, cough or did you almost stop your regular activity?

None 1 - 2 days 3 or more days

3. How many NIGHTS in the past 2 weeks did you wake up at night because sleeping due to coughing, shortness of breath, wheezing, chest tightness or get up to use your rescue medication?

None 1 - 2 nights 3 or more nights

4. Do you have what makes your breathing problems or asthma worse?

Yes No Unsure

• Please circle things that make your breathing problems or asthma worse:

Exercise Smoke Cold Air Colds Flu/cough Chest Pain Allergies Triggers Cats Dogs Mold Other

5. Can you avoid the things that make your breathing problems or asthma worse?

Yes Often Sometimes Most of the time

6. Let us describe medications you're taking for breathing problems or asthma in the past 2 weeks. Remember you may use Rescue, Oral, or Inhaler medications.

Medication	When taken?	Reasons for taking
Rescue	As needed	For quick relief
Oral	As directed	For ongoing control
Inhaler	As directed	For ongoing control

7. A. When I use my breathing or asthma medications I feel:

Worse No Different As Little Better A Lot Better

B. Quality of life

Engage in normal daily activities

Daytime symptoms

Nighttime awakenings

Precipitating factors

Patient's self-mgmt knowledge/skills

Patient's self-mgmt knowledge/skills

Need for rescue SABA

Quality of life

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Management-New horizons

► NIH study on a new pathway for asthma

► About half the asthmatics will have type 2 high asthma which is caused by increase in eosinophils; in these patients standard asthma medications don't work but immunotherapy does work

► Currently led by Dr Stewart Levine apolipoprotein A-1 is being studied and show that they can regulate the severity of asthma

► It was shown that inhalation of 5A apolipoprotein A-1 mimetic peptide prevented allergic lung inflammation in asthmatic mice who lacked their own apolipoprotein A-1

► The next step is to see if this will help in humans their preliminary studies have shown higher levels of Apolipoprotein A-1 in asthmatic patients were associated with better lung function

Article adapted from www.nih.gov

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Management-Osteopathic Manipulation

► Next we will move on the hands on treatment of asthma

► Dr Margaret Wilkins DO will be assisting me she is Director of Faculty Development at PCOM MedNet OPTI and Clinical Associate Professor of Family Medicine

► What is the evidence?

► Reviewed article from the JAOA on "Effects of Osteopathic Manipulative treatment on Pediatric Patients with Asthma: Randomized Controlled Trial"

► OMT was shown to improve peak flow from 7L per minute to 9L per minute

► OMM techniques have been shown to increase vital capacity and rib cage mobility, improve diaphragmatic function and enhance clearing of airway secretions

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POFPS 43RD Annual CME Symposium
August 3-5, 2018

Benefits of Osteopathic Manipulative Therapy in Asthmatic Patients

- ▶ Osteopathic manipulative (OM) techniques have been shown:
 - ▶ To increase vital capacity and rib cage mobility
 - ▶ Improve diaphragmatic function
 - ▶ Enhance the clearing of airway secretions, and possibly enhance autoimmune function.
 - ▶ In patients with asthma, osteopathic techniques that focus on thoracic structure and function can be employed to maximize the effectiveness of the respiratory cycle.
 - ▶ Notable improvements (25% to 70%) in patients' peak expiratory flow rates (PEFRs) have been reported following the use of OMT

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Management-Osteopathic Manipulation

- ▶ **Soft tissue techniques**
 - ▶ direct techniques which involve linear stretching deep pressure and traction
 - ▶ myofascial tissues are moved to the restrictive barrier
- ▶ **Myofascial release**
 - ▶ performed in either a direct manner where the restrictive barrier is engaged or an indirect fashion where the physiologic barrier at the ease of direction of tension or motion of asymmetry
- ▶ **Lymphatic techniques**
 - ▶ help improve lymphatic flow
 - ▶ must first eliminate somatic dysfunction through above techniques as well as muscle energy and HVLA


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Management-Osteopathic Manipulation

- ▶ Use Osteopathic techniques to encourage proper tissue activity and metabolism
- ▶ Soft Tissue and Myofascial Release of cervical and thoracic region
- ▶ Rib Raising
- ▶ Thoracic Inlet Release
- ▶ Diaphragm release

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Soft tissue techniques to cervical spine




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Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

1. The patient lies supine on the treatment table.
2. The physician sits or stands at the head of the table.
3. The physician's one hand gently cradles the occiput between the thumb and index finger. The physician's other hand lies across the patient's forehead or across under the chin (Figs 18 and 19). (Use caution in patients with temporomandibular joint [TMJ] dysfunction.)
4. The physician exerts upbanded traction with both hands with the hand and neck in a neutral to slightly flexed position in small extension. The cradling hand must not squeeze the occiput, or the occipito-mastoid suture will be compressed (Fig 18).
5. This tractional force is applied and released slowly. It may be increased in amplitude as per patient tolerance.
6. This technique may also be performed using sustained traction.
7. This technique may be performed for 2 to 5 minutes to achieve the desired effects. It may be especially helpful in patients with degenerative disk disease.
8. In patients with TMJ dysfunction, it may be modified by placing one hand on the forehead instead of the mouth (Fig 19).
9. Tissue tension is reevaluated to assess the effectiveness of the technique.

Soft tissue techniques to cervical spine



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Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas


Forward Bending (Unilateral Folioform), Supine

1. The patient lies supine on the treatment table.
2. The physician sits at the head of the table.
3. The physician gently flexes the patient's neck with one hand while the other hand lies down under the patient's neck and upper shoulder (Fig 18).
4. The physician gently moves the patient's head using the physician's forearm toward the spine, producing a unilateral curve of the cervical vertebrae (Fig 18).
5. The motion may be repeated as many times as necessary to achieve the desired effect, usually 3 to 5 minutes.
6. The procedure is repeated to treat the opposite side of the patient's neck, with the physician's hand that was on the table now on the floor under the patient's shoulder (Fig 19, and steps 4 and 5 are repeated in the opposite direction (Fig 18).
7. Tissue tension is reevaluated to assess the effectiveness of the technique.

Forward Bending (Unilateral Folioform), Supine

1. The patient lies supine on the treatment table.
2. The physician sits at the head of the table.
3. The physician's forearm cradles the patient's head, and the physician's hands are placed palm down on the patient's shoulders (Fig 18).
4. The physician's forearm gently flexes the patient's neck, producing a unilateral curve of the cervical vertebrae (Fig 18).
5. This technique may be performed as a gentle, rhythmic motion or as a sustained traction.
6. Tissue tension is reevaluated to assess the effectiveness of the technique.

Soft tissue techniques to cervical spine



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Cervical Region

Contralateral Traction, Supine

1. The patient lies supine on the treatment table.
2. The physician sits at the side of the table opposite the side to be treated.
3. The physician's cradled hand cradles one side of the patient's neck with the thumb of the fingers on the patient's occiput, producing a contralateral curve of the cervical vertebrae (Fig 18).
4. The physician's cradled hand gently flexes the patient's head using the physician's forearm gently toward the spine, producing a contralateral curve of the cervical vertebrae (Fig 18).
5. The motion may be repeated as many times as necessary to achieve the desired effect, usually 3 to 5 minutes.
6. The procedure is repeated to treat the opposite side of the patient's neck, with the physician's hand that was on the table now on the floor under the patient's shoulder (Fig 19, and steps 4 and 5 are repeated in the opposite direction (Fig 18).
7. Tissue tension is reevaluated to assess the effectiveness of the technique.

Cervical Region

Cradling with Traction, Supine




1. The patient lies supine on the treatment table.
2. The physician sits at the head of the table.
3. The physician's hands are placed under the patient's neck bilaterally, with the fingers toward the occiput and the palms toward the shoulders, producing a bilateral curve of the cervical vertebrae (Fig 18).
4. The physician gently flexes the patient's head, usually to engage the articular and vertebral surfaces (Fig 18).
5. The traction on the cervical vertebrae is slowly released.
6. The physician's hands are repositioned to cradle the patient's head and neck and the patient's head is gently flexed, producing a bilateral curve of the cervical vertebrae (Fig 18).
7. The physician's hands are placed under the patient's neck bilaterally, with the fingers toward the occiput and the palms toward the shoulders, producing a bilateral curve of the cervical vertebrae (Fig 18).
8. Tissue tension is reevaluated to assess the effectiveness of the technique.

Soft tissue techniques to cervical spine

TECHNIQUE REVIEW

Lateral Traction, Seated (e.g., Left Cervical Paravertebral Muscles Hypertonicity, Facial Insensitivity, and Others)

1. The patient is seated on the treatment table.
2. The physician stands behind and to the right side of the patient table. The patient's hands comfortably support the physician's chin.
3. The physician's right hand supports head and forearm are placed over the patient's right shoulder and are gently moved the patient's left shoulder right (Fig. 130).
4. The physician's left hand is placed on the side of the patient's left shoulder as the superior response and mechanical stretch (Fig. 130).
5. The physician's right hand gently cradles the patient's head as the right hand supports anterior superior neck and the left hand supports the right shoulder (Fig. 130).
6. The technique may be performed in a gentle, rhythmic fashion or in a sustained manner.
7. Gradually, the technique may be extended to lower cervical spine.
8. Tissue tension is released to assess the effectiveness of the technique.






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Soft tissue techniques to thoracic region

TECHNIQUE REVIEW

Prone Pressure




1. The patient is prone, preferably with the head turned posteriorly and supported by a towel.
2. The physician stands at the end of the table opposite the side to be treated.
3. The physician places the thumb and finger pads of the right hand over the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 131).
4. The physician places the thumb anteriorly of the other hand on the interscapular space.
5. Keeping the thumb straight and with the body weight the physician's right hand is gently moved in a rhythmic fashion over the thoracic paravertebral muscles (Fig. 131).
6. The right hand is held in a firm contact and is steady.
7. Deep, rapid strokes are repeated several times in a gentle, rhythmic, and flowing fashion.
8. The physician's hands are moved in a circular fashion over the interscapular space.
9. The physician's hands are moved in a circular fashion over the interscapular space.
10. The physician's hands are moved in a circular fashion over the interscapular space.



Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

Prone Pressure with Two Hands (contour)

1. The patient is prone on the treatment table, preferably with the head turned toward the physician's left shoulder. The right hand is placed on the right side of the interscapular space and the left hand is placed on the left side.
2. The physician's hands are placed palm down with the fingers in the interscapular space of the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 132).
3. The physician's hands are placed palm down with the fingers in the interscapular space of the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 132).
4. The physician's hands are placed palm down with the fingers in the interscapular space of the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 132).
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9. The physician's hands are placed palm down with the fingers in the interscapular space of the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 132).
10. The physician's hands are placed palm down with the fingers in the interscapular space of the patient's thoracic paravertebral muscles over the interscapular space on the appropriate side (Fig. 132).






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Soft tissue techniques to thoracic region

TECHNIQUE REVIEW

Door and Doorway Techniques, Seated




1. The patient is seated with the arms crossed and the head turned toward the physician's right shoulder.
2. The physician stands behind the patient.
3. The physician's hands are placed over the patient's shoulders, allowing the patient's head to rest on the physician's hands.
4. The physician's hands are placed over the patient's shoulders, allowing the patient's head to rest on the physician's hands.
5. The physician's hands are placed over the patient's shoulders, allowing the patient's head to rest on the physician's hands.
6. The physician's hands are placed over the patient's shoulders, allowing the patient's head to rest on the physician's hands.
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Door and Doorway Techniques, Seated

1. The patient is seated with the arms crossed and the head turned toward the physician's right shoulder.
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10. The physician's hands are placed over the patient's shoulders, allowing the patient's head to rest on the physician's hands.



Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

Soft tissue techniques to thoracic region (upper)

1. The patient lies in the lateral recumbent position with the side to be treated up.

2. The physician stands at the side of the table, facing the patient.

3. The physician's caudad hand is passed under the patient's armpit, with the pads of the fingers on the medial aspect of the patient's paravertebral muscles overlying the thoracic transverse processes (Fig. 7.60).

4. The physician's cephalad hand contacts the anterior portion of the shoulder to provide an effective counterforce (Fig. 7.61). Note: The patient's arm may be flexed approximately 120 degrees and draped over the physician's shoulder-contrasting arm as needed (Fig. 7.62).

5. The physician's caudad hand exerts a gentle force ventrally to engage the soft tissues and laterally to create a perpendicular stretch of the thoracic paravertebral musculature (Fig. 7.63).

6. This stretch is held for a few seconds and is then slowly released.







FIGURE 7.60. Step 1.

FIGURE 7.61. Step 2.

FIGURE 7.62. Step 3.

FIGURE 7.63. Step 4.

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Soft tissue techniques to thoracic region (lower)

1. The patient is in a lateral recumbent position with the side to be treated up.

2. The physician stands at the side of the table, facing the front of the patient.

3. The physician reaches both hands under the patient's arm, with the pads of the fingers contacting the medial aspect of the patient's paravertebral muscles, overlying the thoracic transverse processes (Figs. 7.66 and 7.67).

4. The physician's hands exert a gentle force ventrally to engage the soft tissues and laterally to create a perpendicular stretch of the thoracic paravertebral musculature (Fig. 7.68).

5. This stretch is held for a few seconds and is slowly released.

6. Steps 4 and 5 are repeated in a gentle, rhythmic, and breathing fashion.






FIGURE 7.66. Step 1.

FIGURE 7.67. Step 2.

FIGURE 7.68. Step 3.

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Rib Raising

Rib Raising, Supine Extension

This procedure is commonly used in the postoperative setting to treat the somatic components of viscerosomatic reflexes (postoperative paralytic ileus).

1. The patient is supine on the treatment table or hospital bed, and the physician is seated on the side to be treated.

2. The physician's hands (palms up) reach under the patient's thoracic spine (Fig. 7.69) with the pads of the fingers on the patient's thoracic paravertebral musculature between the spinous and the transverse processes on the side closest to the physician (Fig. 7.70).

3. The physician exerts a gentle force ventrally to engage the soft tissues and laterally perpendicular to the thoracic paravertebral musculature. This is facilitated by a downward pressure through the elbows on the table, creating a fulcrum to produce a ventral flexion action at the wrist and hands, engaging the soft tissues. The fingers are simultaneously drawn toward the physician, producing a lateral stretch perpendicular to the thoracic paravertebral musculature (Fig. 7.71).

4. This stretch is held for several seconds and is slowly released.

5. Steps 2 and 4 are repeated several times in a gentle, rhythmic, and breathing fashion.

6. The physician's hands are repositioned to contact the distal ends of the thoracic spine, and steps 2 to 4 are performed to stretch various portions of the thoracic paravertebral musculature.

7. This technique may also be performed using deep, sustained pressure.

8. Visual feedback is recommended to ensure the effectiveness of the technique.






FIGURE 7.69. Step 1.

FIGURE 7.70. Step 2.

FIGURE 7.71. Step 3.

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POFPS 43RD Annual CME Symposium
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Myofascial Release of Cervical and Thoracic regions

CERVICAL REGION

Supine Cradling

1. The physician kneels, and the patient lies on the floor of the table.
2. The physician places one hand on the patient's occiput and the other on the patient's forehead (Fig. 44) at the level of the external occipital protuberance.
3. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
4. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 45).
5. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 46).
6. The force is applied in a very gentle to moderate manner.
7. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 44: Step 1, cradling motion.
FIGURE 45: Step 2, wavelike motion.
FIGURE 46: Step 3, cradling motion.

THORACIC REGION

Humeral Roll and Ductal, Treated (Fig. 47)

1. The patient is seated. The physician stands behind the patient.
2. The physician places the hands on the patient's upper back (vertebrae T1-T2) (Fig. 48).
3. The physician places the hands on the patient's upper back (vertebrae T1-T2) (Fig. 48).
4. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
5. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 49).
6. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 50).
7. The force is applied in a very gentle to moderate manner.
8. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 47: Step 1, humeral roll and ductal.
FIGURE 48: Step 2, cradling motion.
FIGURE 49: Step 3, cradling motion.

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Myofascial Release of Thoracic region

THORACIC REGION

Prone

1. The patient lies prone on the treatment table.
2. The physician stands beside the patient, slightly rephrased to the floor (Fig. 51).
3. The physician places both hands on the patient's upper back (vertebrae T1-T2) (Fig. 52).
4. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
5. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 53).
6. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 54).
7. The force is applied in a very gentle to moderate manner.
8. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 51: Step 1, prone position.
FIGURE 52: Step 2, cradling motion.
FIGURE 53: Step 3, cradling motion.

THORACIC REGION

Prone

1. The patient lies prone on the treatment table.
2. The physician stands beside the patient, slightly rephrased to the floor (Fig. 51).
3. The physician places both hands on the patient's upper back (vertebrae T1-T2) (Fig. 52).
4. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
5. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 53).
6. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 54).
7. The force is applied in a very gentle to moderate manner.
8. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 54: Step 4, cradling motion.
FIGURE 55: Step 5, cradling motion.

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Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas.

Pectoral Traction- Lymphatic technique

THORACIC REGION

Pectoral Traction: Pectoralis Major, Pectoralis Minor, and Anterior Deltoid Muscles

Indications

This technique is indicated for lymphatic congestion, venous congestion, and to improve circulation in the thoracic region.

Contraindications

This procedure should not be used if the patient has a history of aortic aneurysm, aortic dissection, or aortic regurgitation.

Physiologic Goal

The goal is to increase lymphatic return.

Technique

1. The patient lies prone on the table and knees bent and feet flat on the table.
2. The physician sits on the floor of the table and places both hands on the patient's upper back (vertebrae T1-T2) (Fig. 56).
3. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
4. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 57).
5. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 58).
6. The force is applied in a very gentle to moderate manner.
7. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 56: Step 1 to 3, hand position.
FIGURE 57: Step 4 to 5, force toward ceiling.
FIGURE 58: Step 6, roll position.

THORACIC REGION

Pectoral Traction: Pectoralis Major, Pectoralis Minor, and Anterior Deltoid Muscles

Indications

This technique is indicated for lymphatic congestion, venous congestion, and to improve circulation in the thoracic region.

Contraindications

This procedure should not be used if the patient has a history of aortic aneurysm, aortic dissection, or aortic regurgitation.

Physiologic Goal

The goal is to increase lymphatic return.

Technique

1. The patient lies prone on the table and knees bent and feet flat on the table.
2. The physician sits on the floor of the table and places both hands on the patient's upper back (vertebrae T1-T2) (Fig. 56).
3. The physician slowly and gently pulls the patient's head back and forth across the patient's midline.
4. The physician moves superior and inferior, left to right, and right to left, while the patient's head is being pulled back and forth, creating a wavelike motion (Fig. 57).
5. After describing the progress of an essential movement, the physician will either intensify or directly move the movement (Fig. 58).
6. The force is applied in a very gentle to moderate manner.
7. This time is held for 20 to 30 seconds or until a release is achieved. The physician may continue this and follow an additional release (long) and follow an additional release (long) until a release is achieved.

FIGURE 59: Step 1 to 3, hand position.
FIGURE 60: Step 4 to 5, force toward ceiling.
FIGURE 61: Step 6, roll position.

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Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas.

Rib Raising- Lymphatic technique

THORACIC REGION

Rib Raising: Bilateral Upper Thoracic Variations

Indications
This technique is indicated to facilitate lymphatic drainage, improve lung expansion of the ribs, and alleviate postoperative paralytic ileus.

Contraindications

Technique

1. The patient lies supine, and the physician sits or stands at the head of the table.
2. The physician places both hands under the patient's thoracic region.
3. The finger pads of both hands contact the paravertebral spaces over the costovertebral articulations (Fig. 16.51).
4. By leaning down with the elbows, the physician draws the fingers into the paravertebral spaces (solid arrows, Fig. 16.52) and then pulls them (dashed arrows) toward the physician cephalad and laterad.
5. This stretch the upper and places a lateral stretch on the paravertebral tissues.

This technique may be performed as an intermittent stretching technique on ribs treated along inhibitory pressure for 3 to 5 minutes.




FIGURE 16.51. Steps 1 to 3, setup and hand placement.




FIGURE 16.52. Step 4, anterior cephalad lateral force.

Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

Pectoral Traction- Lymphatic Technique

THORACIC REGION

Pectoral and Chest Cage Motion Restrictions: Long Lateral Traction Through Shoulder Girdle

1. The patient lies supine, and the physician sits or stands at the head of the table.
2. The patient's arms are extended at the elbows, and slowly flexed at the shoulders to bring them upward off the table until reaching a restrictive barrier (upward flexion is approximately 180 degrees) (Fig. 16.53 and 16.54).
3. The physician carefully checks the flexion barrier and then, by adding a rotation, moves the right shoulder laterally and medially, the left shoulder medially and laterally, to determine whether a somatoparallel, mediolateral restrictive barrier exists (Figs. 16.55 and 16.56).
4. The physician is attempting to determine restrictive barriers not only essentially in the shoulder girdle, but in the chest cage extending as well as the chest cage and diaphragm. When moving the restrictive flexion barrier, the physician creates a force "channel" in a gentle, continuous manner and holds this position for 30 to 60 seconds or until a release is perceived.
5. To facilitate the traction, a "Pectoral Discharging Assistance" (PDA) may be introduced by having the patient breathe fully, hold the breath for 5 to 15 seconds, and then exhale.
6. When a release is perceived, the physician should follow it by adding traction and anterior movement to the more restrictive barrier. If preferred, the physician may perform this technique directly against the arm barriers, but in our clinical experience, the above version is most successful.




FIGURE 16.53. Steps 1 and 2, lateral view.




FIGURE 16.54. Step 3, anterior view.





FIGURE 16.55. Step 4, traction, right abduction, left internal to external rotation.

Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

Thoracic Inlet

Functional Thoracic Inlet

- First 5 thoracic vertebrae
- First 5 ribs and their costochondria
- The manubrium
- The sternum (gladiolus)



Anatomic Thoracic Inlet:

- First ribs
- First thoracic vertebra
- The superior end of the manubrium

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THORACIC REGION

Thoracic Inlet and Outlet: Myofascial Release, Direct, Sequence

Indications



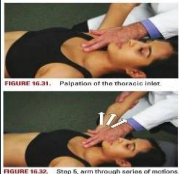

This sequence is indicated for any dysfunction on both sides to compensate or assist in unobstructed flow and to be performed on the side of the thoracic inlet and outlet.

Contraindications

This sequence should not be used if the patient has previously received treatment of the thoracic inlet and outlet region, either with or without manual therapy.

Technique

1. The patient lies supine with the arms on the table.
2. The physician stands on one side of the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
3. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
4. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
5. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
6. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
7. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.
8. The physician places the hand on the thoracic inlet and outlet, with the other hand on the thoracic inlet and outlet.



Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

THORACIC REGION

Miller Thoracic (Lymphatic) Pump

Indications



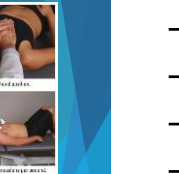

The Miller Thoracic (Lymphatic) Pump is indicated for any dysfunction on both sides to compensate or assist in unobstructed flow and to be performed on the side of the thoracic inlet and outlet.

Contraindications

This sequence should not be used if the patient has previously received treatment of the thoracic inlet and outlet region, either with or without manual therapy.

Physiologic Goal

The goal is to increase lymphatic flow and to be performed on the side of the thoracic inlet and outlet.



Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

THORACIC REGION

Thoracic (Lymphatic) Pump, Side Modification

Indications



This sequence is indicated for any dysfunction on both sides to compensate or assist in unobstructed flow and to be performed on the side of the thoracic inlet and outlet.

Contraindications

This sequence should not be used if the patient has previously received treatment of the thoracic inlet and outlet region, either with or without manual therapy.

Physiologic Goal

The goal is to increase lymphatic flow and to be performed on the side of the thoracic inlet and outlet.



Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

POFPS 43RD Annual CME Symposium
August 3-5, 2018

“Osteopathic Approach to Asthma”

Rina Chabra, DO

Diaphragm Doming

TECHNIQUE: DOMING THE DIAPHRAGM

Indications:

- Patients with asthma, chronic obstructive pulmonary disease (COPD), and other respiratory conditions.
- Patients with diaphragm dysfunction or weakness.
- Patients with chronic pain or discomfort in the chest or upper back.

Contraindications:

- Patients with severe osteoporosis or bone density loss.
- Patients with severe heart or lung disease.
- Patients with severe abdominal or pelvic conditions.

Preparation:

- The patient is positioned in a supine position.
- The practitioner is positioned at the head of the table.
- The patient's head is supported by a rolled towel.
- The patient's knees are bent at a 90-degree angle.
- The patient's arms are extended to the sides.

Technique:

1. The practitioner places their hands on the patient's lower ribs.
2. The practitioner uses their thumbs to apply gentle pressure to the diaphragm.
3. The practitioner moves their hands in a circular motion, applying pressure to the diaphragm.
4. The practitioner continues to apply pressure until the diaphragm is domed.
5. The practitioner holds the domed diaphragm for 10-15 seconds.
6. The practitioner releases the diaphragm and repeats the technique.

FIGURE 10-1A. Hands on lower ribs.

FIGURE 10-1B. Thumbs doming diaphragm.

FIGURE 10-1C. Hands on lower ribs.

FIGURE 10-1D. Thumbs doming diaphragm.

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Images adapted from Atlas of osteopathic techniques Nicholas and Nicholas

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