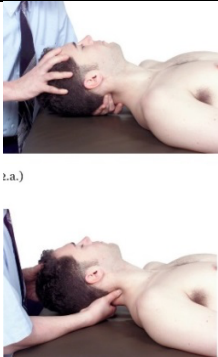
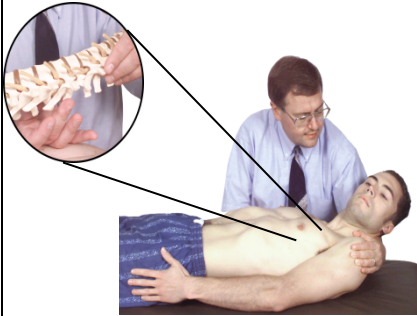


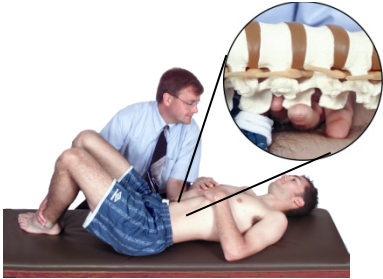
Muscle Energy Technique

Definition	Muscle Energy (ME) Technique A form of osteopathic manipulative diagnosis and treatment in which the patient's muscles are actively used on request, from a precisely controlled position, in a specific direction, and against a distinctly executed physician counterforce.
Technique Types and Principles	Postisometric relaxation takes advantage of the reflex relaxation that occurs right after a muscle contraction. Joint mobilization using muscle force uses a strong voluntary muscle contraction to gap an affected joint (example: pubic compression). Respiratory assistance uses voluntary motion of the respiratory muscles as the activating force. Oculocephalogyric reflex uses eye muscles initiate reflex muscle contractions in the cervical spine. Reciprocal inhibition uses a contraction in an agonist muscle to reflexively relax an antagonistic muscle. Crossed extensor reflex uses muscle contraction in one extremity the treat the contralateral extremity.
Types of Muscle Contraction	Isokinetic Strengthening: Isokinetic strengthening allows the affected muscle to slowly shorten during a sustained concentric muscle contraction in order to build strength in the affected muscle. Isometric Muscle Contraction: Most common form of contraction used in muscle energy technique. The origin and insertion of the muscle are maintained in a stationary position while the muscle is contracted against resistance. Isotonic Muscle Contraction: This basic principle is applied to joint restriction by activating a specific muscle while fixing only one end of the muscular attachment, with the goal of restoring normal mechanics. Hypotonic, reflexively inhibited muscles are frequently treated with isotonic contractions. Isolytic Muscle Contraction: Used for the treatment of fibrotic or chronically shortened myofascial tissues. The applied counterforce is greater than the patient force, resulting in lengthening of the myofascial tissues.
Indications	Any type of clinically relevant somatic dysfunction
Contraindications	Absolute - Absence of somatic dysfunction - Lack of patient consent and/or cooperation Relative - Infection, hematoma, or tear in involved muscle - Fracture or dislocation of involved joint - Rheumatologic conditions causing instability of the cervical spine - Undiagnosed joint swelling of involved joint - Positioning that compromises vasculature
Method	1. Initial positioning is accomplished by engaging the restrictive barriers in all three planes, then localize by fine tuning of the positioning at the dysfunction without causing patient guarding 2. Physician establishes an appropriate counterforce 3. Patient introduces appropriate muscle energy effort against physician counterforce for 3-5 seconds with the amount of force dependent upon the type of muscle energy technique being performed 4. The patient must completely relax following muscle effort for 1-2 seconds (post-relaxation phase) 5. Physician repositions the patient at the new restrictive barrier 6. Repeat steps 2-5 until no further change is obtained, typically 3-5 times. 7. Reassess for appropriate change

Sample Muscle Energy Techniques

Cervical	OA – flexed, sidebent left, rotated right	1. Patient supine, physician supports C1 posterior arch and lateral masses with thumb and finger at head of table 2. Other hand grasps head while physician rotates head left, sidebends right, and extends to engage restrictive barrier 3. Patient rotates head right and/or looks to the right while physician offers isometric counterforce for 3-5 seconds 4. Physician and patient relax completely (1-2 seconds) and then physician moves head to new restrictive barrier 5. Repeat steps 3 and 4 at least 2 more times 6. Recheck	
	AA left rotation	1. Patient supine, physician contacts both lateral masses of atlas with lateral margins of index or middle fingers 2. Physician extends head over his/her fingers and rotates AA joint to right 3. Patient rotates head left while physician offers isometric counterforce for 3-5 seconds. 4. Physician and patient relax completely (1-2 seconds) and then physician rotates patient head right to new restrictive barrier 5. Repeat steps 3 and 4 until best motion obtained, typically 3-5 times 6. Recheck	
	C2-C3 R _L S _L	1. Patient supine, physician contacts right side of articular column with finger pads and pulls (translates) left to induce right sidebending or places thumb pad on lateral margin of right articular pillar and pushes (translates) left to induce right sidebending 2. Physician flexes or extends to localize while other hand grasps head for counterforce 3. Patient pushes head toward left while physician offers isometric counterforce for 3-5 seconds 4. Patient and physician relax completely (1-2 seconds) and then physician sidebends dysfunctional segment to new restrictive barrier. 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	
	C4-C7 R _L S _L	1. Patient supine, physician pushes (translates) right articular column of dysfunctional vertebra to left with thumb pad to induce right sidebending to restricted barrier. 2. Other hand grasps head for counterforce and flexes or extends neck to localize dysfunctional segment. 3. Patient pushes head to the left while physician maintains isometric counterforce for 3-5 seconds 4. Patient and physician relax completely (1-2 seconds) and then physician sidebends dysfunctional segment to new restrictive barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	

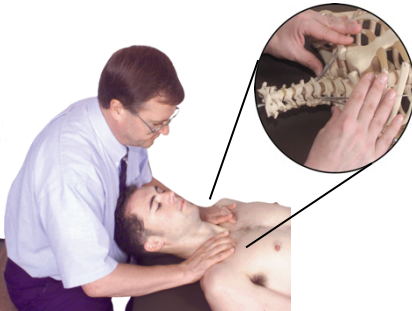
Thoracic	T1-T12 NS _L R _R	1. Seated patient places right hand on back of neck and grasps elbow with other hand 2. Physician reaches under patients left arm and grasps right shoulder while thumb of other hand contacts right transverse process of dysfunctional segment 3. Physician flexes or extends thoracic spine to localize sagittal plane then sidebends patient right and rotates left to restrictive barrier 4. Patient turns to right or sidebends to left while physician offers isometric counterforce for 3-5 seconds. 5. Patient and physician relax completely (1-2 seconds) and then physician moves dysfunctional segment to new restrictive barrier. 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. recheck	
	T4-T12 NS _L R _R	1. Supine patient with physician reaching under the patient with right hand to grasp the spinous process of the dysfunctional vertebra and induce left rotation by pulling it toward the right 2. Physician grasps patient's left shoulder and pulls toward the physician to induce right sidebending. Flexion and extension are localized with the patient's head and neck 3. Patient sidebends to the left while the physician offers isometric counterforce typically 3-5 seconds 4. Patient and physician relax completely (1-2 seconds), then physician moves dysfunctional segment to new restrictive barrier. 5. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 6. Recheck	
Lumbar	L1-L5 NS _L R _R	1. Seated patient's right hand is placed on his/her left shoulder. 2. Physician reaches across patient's chest with left hand to grasp right shoulder and leans against patient's left shoulder. 3. Physician monitors motion and provides a fulcrum to transverse process of dysfunctional segment with right thumb. 4. Physician rotates left, sidebends right, and flexes or extends to restrictive barrier while keeping shoulders balanced over hips as much as possible 5. Patient bends to left against physician or turns body against right thumb while physician offers isometric counterforce for 3-5 seconds 6. Patient and physician relax completely (1-2 seconds) and then physician repositions all planes to new restrictive barrier 7. Repeat steps 5 and 6 until best motion is obtained, typically 3-5 times 8. Recheck	

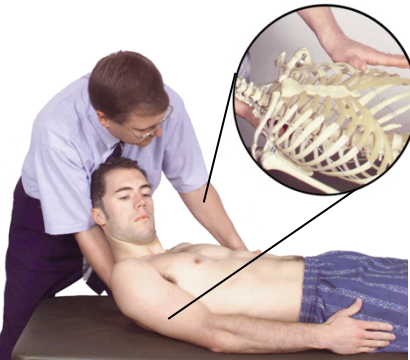
	L1-L5 NS _L R _R	1. Patient supine with physician reaching under the patient with right hand to grasp the spinous process of the dysfunctional vertebra and induce left rotation by pulling it toward the right 2. Physician grasps patient's feet and pulls toward the physician to induce right sidebending. Flexion and extension are localized with the patient's hips and knees 3. Patient sidebends to the left while the physician offers isometric counterforce typically 3-5 seconds 4. Patient and physician relax completely (1-2 seconds), then physician moves dysfunctional segment to new restrictive barrier. 5. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 6. Recheck	
Sacrum	Left rotation on Left axis	1. Patient is prone and instructed to flex knees and raise right hip. 2. Physician flexes hips to <u>at least 90°</u> and guides knees to right side of table. 3. Physician supports patient's knees on right thigh to provide a fulcrum for activating force and protect patient's thighs from edge of table 4. Physician monitors motion and flexes hips until motion localizes at the lumbosacral junction 5. Physician grasps spinous process of L5 with fingers of right hand to rotate left and lets legs drop over fulcrum to sidebend left 6. Physician uses left hand to carry patients feet or legs toward floor until side bending is localized at lumbosacral joint 7. Patient lifts feet toward ceiling while physician offers isometric counterforce for 3-5 seconds 8. Patient and physician relax completely (1-2 seconds) and then physician moves patient's feet toward floor to new restrictive barrier. 9. Repeat steps 7 and 8 until best motion is obtained, typically 3-5 times 10. Recheck	  

	Right rotation on a left oblique axis	1. Patient is left lateral recumbent and left shoulder is drawn forward to induce right rotation down to the lumbosacral junction. 2. Patient's knees and hips are flexed just enough to allow legs and feet to drop downward over the edge of the table (<u>less than 90°</u>). Flexion must be slight so that non-neutral mechanics will not be induced. 3. Physician's right hand monitors the sacral base while the right forearm carries the patient's right shoulder backwards 4. Physician uses his/her left hand to carry the patient's feet or legs toward the floor until sidebending is localized at the lumbosacral joint 5. Patient lifts feet toward the ceiling while the physician offers isometric counterforce for 3 to 5 seconds 6. Patient and physician relax completely (1-2 seconds) and then physician moves patient's feet toward the floor to the new restrictive barrier 7. Repeat steps 5 and 6 until best motion is obtained, typically 3-5 times 8. Recheck	 
	Right rotation on a left oblique axis	1. Patient straddles table near end and is instructed to sit up straight while physician monitors right sacral base with thumb pad of his/her right hand. 2. Physician's other hand is on the patient's right shoulder and forearm is braced across back to guide patient. 3. Patient is guided into left sidebending then extension and right rotation to localize motion at lumbosacral junction. 4. Patient gently tries to bend to right while physician offers isometric counterforce for 3 to 5 seconds 5. Patient and physician relax completely then physician adjusts extension, right rotation, and left sidebending to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Pelvis	Anterior innominate	1. Patient is supine and lower extremity on side of dysfunction is flexed at the knee and hip to bring knee over patient's abdomen. 2. Physician holds flexed knee in that position with his/her shoulder against leg while cupping ASIS with cephalad hand and grasping posterior aspect of ischial tuberosity with fingers of other hand. 3. Tension is increased at all contact points and innominate is rotated posteriorly to restrictive barrier 4. Patient pushes knee against physician's chest while physician offers isometric counterforce for 3-5 seconds. 5. Patient and physician relax completely (1-2 seconds) and then physician flexes hip and rotates innominate posteriorly to new restrictive barrier. 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	

	Posterior innominate	1. Patient is supine and positioned at edge of table so leg of dysfunctional side is allowed to hang freely 2. Physician reaches across patient with cephalad hand to cup and stabilize patient's opposite ASIS and places other hand on thigh of dysfunctional extremity just above patient's knee 3. Tension is applied to thigh, rotating innominate anteriorly to restrictive barrier. 4. Patient pulls knee up toward ceiling while physician offers isometric counterforce for 3-5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician extends extremity to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
	Innominate inflare	1. Patient is supine and hip and knee on dysfunctional side are partially flexed and foot is placed on table close to buttocks 2. Physician grasps patient's knee with one hand and cups opposite ASIS with other hand 3. Physician moves knee laterally, abducting thigh to innominate's restrictive barrier 4. Patient pushes knee toward middle of table while physician offers isometric counterforce for 3 to 5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician abducts thigh to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is reached, typically 3-5 times 7. Recheck	
	Innominate Outflare	1. Patient is supine and hip and knee of dysfunctional side are partially flexed and foot is placed on table close to buttocks 2. Physician grasps patients knee with one hand and hooks fingers of other hand over the medial margin of PSIS of dysfunctional side 3. Physician moves knee medially to adduct thigh to innominate's restrictive barrier 4. Patient pushes knee outward while physician offers isometric counterforce for 3 to 5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician adducts thigh to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	

Superior pubic shear	1. Patient is supine with dysfunctional side near edge of table 2. Physician stabilizes opposite ASIS and instructs patient to move to edge of table until his/her ischial tuberosity is over edge. 3. Physician places other hand on knee of dysfunctional extremity and abducts leg to gap symphysis and extends thigh. 4. Patient pushes knee toward ceiling while physician offers counterforce for 3 to 5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician extends thigh to new restrictive barrier. 6. Repeat steps 4 and 5 until best motion is obtained 7. Recheck	
Inferior pubic shear	1. Patient is supine and dysfunctional extremity is flexed at knee and hip and thigh is abducted to gap symphysis 2. Physician places patient's knee against his/her chest, cups cephalad hand over ASIS on side of dysfunction and grasps ischial tuberosity with other hand 3. Tension is applied at all contacts to rotate innominate posteriorly and carry pubic ramus superiorly to restrictive barrier 4. Patient pushes knee toward end of table against physician's chest while physician offers isometric counterforce for 3 to 5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician moves innominate posteriorly to carry pubic ramus superiorly to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Pubic symphysis compression	1. Patient is supine with hips and knees flexed 10" to 12" apart and feet flat on table 2. Physician grasps both knees, holds them together and instructs patient to try and pull knees apart while physician offers isometric counterforce for 3 to 5 seconds 3. Patient and physician completely relax then step 2 is repeated 4. Physician places heel of one hand on medial side of knee opposite him/her while palm of other hand is on medial aspect of other knee with thumb abducted, grasping other forearm. 5. Physician spreads knees 10" to 12" apart and adjusts forearm grasp to brace knees 6. Patient tries to pull knees together while physician offers isometric counterforce for 3-5 seconds 7. Patient and physician relax completely (1-2 seconds) and then physician moves feet and knees a few inches farther apart 8. Repeat steps 6 and 7 until best motion is obtained, typically 3-5 times 9. Recheck	

Rib	Rib 1 Depressed Activating force- R1: anterior and middle scalenes	1. Patient is supine and physician grasps patients arm with one hand and lifts shoulder of dysfunctional side off table. 2. Physicians other hand draws trapezius posteriorly and hooks pads of index and middle fingers over superior border of first rib near transverse process 3. Patient rotates head 20 degrees away from restricted side to maximize scalene pull while patient's forearm on restricted side is placed across forehead. 4. Patient lifts head straight up while physician offers isometric counterforce and draws first rib caudally and laterally for 3-5 seconds 5. Patient and physician completely relax (1-2 seconds) then physician takes up slack with caudad hand to new restrictive barrier. 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
	Rib 1 Elevated Activating force-patient cooperation and respiratory force	1. Patient is supine and the physician sits at the head of the table 2. Physician contacts the posterior margins of both first ribs with his/her thumbs in front of the trapezius and the pad of the index finger over the anterior end of the first rib near the sternoclavicular joints 3. Patient is instructed, "Shrug both of your shoulders up toward your ears while you take a deep breath. Then let your shoulders down as you let your breath out" 4. Physician maintains firm caudad pressure on the ribs during inhalation and follows the ribs caudally during exhalation 5. Steps 3-4 are repeated until the best motion is obtained 6. Recheck	
	Ribs 2-5 Pump handle exhalation dysfunction Activating force- R2: posterior scalene R3-5: pectoralis minor	1. Patient is supine and physician hooks fingers of caudad hand over superior margin of angle of dysfunctional rib or highest rib of group and applies caudad tension 2. Patient turns head away and places forearm of dysfunctional side over forehead and Physician places cephalad hand over patient's elbow and forearm. 3. Patient pulls elbow toward chest or pulls toward belly button, which ever puts most muscle tension on dysfunctional rib while physician offers isometric counterforce for 3-5 seconds 4. Patient and physician completely relax then physician takes up slack with caudad hand to new barrier. 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	

Ribs 2-5 Pump handle inhalation dysfunction Activating force-patient cooperation and respiratory force	1. Patient is supine and the physician stands at the head of the table 2. Physician contacts the dysfunctional rib or the lowest rib of a group with the lateral margin of his/her thumb on the superior aspect of the rib 3. Physician slides the other hand under the patient with the fingers hooked under the inferior margin of the posterior angle of the dysfunctional rib and cradles the patient's head on his/her forearm 4. Physician lifts patient's head and upper thorax into flexion to the barrier and applies cephalad tension on the posterior angle of the rib 5. Patient is instructed, "Take a deep breath and then let it all out forcibly." The physician's anterior hand carries the anterior portion of the dysfunctional rib caudad and holds the rib at the new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Ribs 6-10 Bucket handle exhalation dysfunction Activating force- R6-8: Serratus anterior R9-10: Latissimus Dorsi	1. Patient is supine and the physician stands on the side of the dysfunction 2. Physician uses his/her caudad hand to grasp the rib angle of the dysfunctional rib and pull it inferiorly and laterally 3. Patient turns his/her head away from the dysfunctional rib and places the forearm on the side of the dysfunction over his/her forehead 4. Physician places his/her other hand on the patient's elbow 5. Patient is instructed, "Pull your elbow toward your chest" or "Pull your elbow toward your belly button" or "Pull your elbow toward you hip" localizing the dysfunctional rib 6. Patient maintains force long enough to sense the contractile force is localized at the dysfunctional segment for 3-5 seconds 7. Patient is instructed to gently cease the directive force and the physician simultaneously ceases his/her counterforce 8. Patient and physician relax completely then physician takes up slack with caudad hand to new restrictive barrier 9. Repeat steps 5 through 8 until best motion is obtained, typically 3-5 times 10. Recheck	
Ribs 6-10 Bucket handle inhalation dysfunction Activating force- patient cooperation	1. Patient is supine and physician slides one hand under patient to mid-scapular region while patient's head rests on forearm. 2. Physician contacts shaft of dysfunctional rib at its mid-axillary line with web between thumb and index finger of caudad hand 3. Patient is lifted into forward bending and sidebending toward dysfunctional side until barrier is reached. 4. Patient bends body to other side while physician offers isometric force localized at dysfunctional rib for 3-5 seconds 5. Patient and physician relax completely then physician takes up slack with caudad hand to new restrictive barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times	

		7. Recheck	
	Ribs 11 and 12 pincer motion inhalation dysfunction Activating force- Quadratus lumborum	1. Patient is prone with arm on dysfunctional side extended 2. Physician contacts the costovertebral joint of the dysfunctional rib with one hand and with other hand, grasps the ASIS on the same side 3. Physician lifts pelvis until tension is palpated at the rib 4. Patient takes a deep breath and holds the breath out on exhalation while the physician lifts the pelvis causing the quadratus lumborum to pull the rib into exhalation 5. Repeat step 6 is until the best motion is obtained, typically 3-5 times 6. Recheck	
	Ribs 11 and 12 pincer motion exhalation dysfunction Activating force stretches Quadratus lumborum	1. Patient is prone with the arm on the side of the dysfunction extended 2. Physician contacts the inferior margin of the dysfunctional rib with the full length of his/her thumb while the other hand grasps the ASIS on the same side 3. The pelvis is lifted while the dysfunctional rib is guided anteriorly and superiorly to the inhalation restrictive barrier 4. Patient breathes in and out deeply while tension on the restrictive barrier is maintained and quadratus lumborum muscle is stretched 5. Steps 4-5 are repeated until a release 6. Recheck	

Upper Extremity	Glenohumeral joint muscle restriction Seven Stages Of Spencer	Patient is lateral recumbent with dysfunctional shoulder up, elbow of normal arm is brought anteriorly and knees and hips are flexed to stabilize Extension 1. Physician cups cephalad hand over superior aspect of patients shoulder to stabilize clavicle and scapula and monitor motion and glide. 2. Physician grasps forearm with caudad hand, flexes elbow and carries humerus into extension to restrictive barrier 3. Isometric muscle energy activation is applied until best motion is obtained Flexion 1. Physician changes hands to cup superior aspect of shoulder with caudad hand to stabilize clavicle and scapula and monitor motion and glide 2. Other hand flexes patients arm through a 180 degree arc to restrictive barrier 3. Isometric muscle energy activation is applied until best motion is obtained Circumduction with compression 1. Physician maintains cephalad hand contact and caudad hand flexes patient's elbow and abducts humerus to 90 degrees. 2. A small amount of pressure is applied to elbow then elbow is circumducted clockwise and counter-clockwise in a cone-shaped manner, gradually increasing circle diameter to full range of motion Circumduction with traction 1. Physician maintains cephalad hand contact, elbow is extended, and traction is applied toward ceiling. 2. Arm is circumducted in clockwise and counter-clockwise cone-shaped manner, gradually increasing circle diameter to full range of motion Abduction 1. Physician cups superior aspect of patients shoulder with cephalad hand and grasps elbow with caudad hand to abduct humerus to restrictive barrier. 2. Isometric muscle energy activation is applied until best motion is obtained Internal rotation 1. Physician maintains cephalad hand contact and moves patients hand to behind patient's lumbosacral area, if possible, or placed on hip or table in front of body 2. Physician gently pulls elbow anteriorly to internally rotate humerus to restrictive barrier 3. Isometric muscle energy activation is applied until best motion is obtained Joint pump 1. Physician extends patient's elbow, abducts humerus, and places patients forearm or hand on his/her shoulder 2. Physician places both hands on humerus and intermittently applies sufficient caudad force to scoop humeral head from glenoid fossa and create gentle pumping motion in joint 3. Motion can be aimed in any direction to affect any portion of the capsule	
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	Radial head posterior	1. Physician applies a hand-shake grip on side of patients dysfunction and places index finger on anterior surface of patients distal radius 2. Physician applies anterior pressure against posterior aspect of radial head with pad of thumb of other hand 3. Physician extends elbow to within several degrees of full extension and supinates hand to restrictive barrier 4. patient turns hand over while physician offers isometric counterforce for 3-5 seconds 5. Patient and physician completely relax then physician supinates and moves radial head to new restrictive barrier 6. Repeat steps 5 and 6 until best motion is obtained, typically 3-5 times 7. Recheck	
	Interosseous membrane	1. Physician holds patients supinated forearm in palms of both hands such that his/her hand on radial side of patient's forearm is closest to physician 2. Physician's thumbs are crossed over the anterior surface of patient's forearm with interosseous dysfunction between his/her thumbs 3. Pad and tip of thumb of hand closest to physician, on radial side, contacts lateral side of ulna while the thumb of other hand contacts the medial side of radius 4. Patient turns his/her palm downward while physician offers isometric counterforce for 3-5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician gently takes up slack in interosseous joint 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Lower Extremity	Shortened hip extensors	1. Patient is supine and his/her heels or distal portion of leg is placed on physician's medial shoulder while physician grasps patient's distal thigh above patella with both hands 2. Physician raises extended leg and flexes patient's hip to muscular barrier by lifting his/her shoulder upward and/or walking toward patient's head 3. Patient pulls heel down toward physician's shoulder while physician offers isometric counterforce for 3 to 5 seconds 4. Patient and physician relax completely (1-2 seconds) and then physician moves leg to new muscular barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	

Shortened hip flexor (iliopsoas)	1. Patient is supine at end of table with both legs hanging off 2. Physician flexes leg opposite of restriction and places that knee against his/her chest while physicians hand on side of restriction is placed on other knee to extend to muscular barrier 3. Patient pulls knee up toward ceiling while physician offers isometric counterforce for 3 to 5 seconds 4. Patient and physician relax completely (1-2 seconds) and then physician moves leg to new muscular barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	
Shortened hip abductors	1. Patient is supine and physician crosses dysfunctional extremity over the opposite thigh and places his/her forearm under the dysfunctional leg below knee and grasps opposite knee to provide counterforce 2. Physician's other hand is placed on patient's other ASIS to stabilize pelvis 3. Physician adducts thigh to its muscular barrier without pelvis lifting from table 4. Patient pushes knee of dysfunctional leg toward physician while physician offers isometric counterforce for 3 to 5 seconds 5. Patient and physician relax completely (1-2 seconds) and then physician moves leg to new muscular barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Shortened hip adductors	1. Patient is supine and physician grasps patient's leg and abducts thigh to muscular barrier. 2. Physician stands between table and patient's thigh and supports distal thigh, knee, or possibly ankle against his/her hip 3. Physician's opposite hand is place over opposite ASIS to stabilize pelvis 4. Patient pushes knee against physician's hip while physician offers isometric counterforce 5. Patient and physician relax completely (1-2 seconds) and then physician moves leg to new muscular barrier 6. Repeat steps 4 and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
Tibial external rotation with anteromedial glide	1. Patient sits with legs hanging off table and physician places palm of his/her hand on medial side of patient's proximal tibia while fingers wrap around posterior aspect of tibia and thumb bridges medial joint space to monitor motion and palm creates posterolateral glide 2. Physician grasps patient's ankle and foot with other hand to apply traction, internal rotation, and posterolateral glide to restrictive barrier 3. Patient turns foot outward while physician offers isometric counterforce for 3 to 5 seconds 4. Patient and physician relax completely (1-2 seconds) and then physician internally rotates and allows posterolateral glide of tibia to new restrictive barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	

	Tibial internal rotation with posterolateral glide	1. Patient sits with his/her legs hanging off table and physician lays palm of his/her hand on medial side of patient's proximal tibia with the fingers around the posterior surface of the thumb bridging the medial joint space to monitor motion and create posterolateral glide 2. Physician grasps patient's foot and ankle with other hand to apply traction, external rotation, and anterolateral glide to restrictive barrier 3. Patient turns foot inward while physician offers isometric counterforce for 3 to 5 seconds 4. Patient and physician relax completely (1-2 seconds), then physician externally rotates and allows anteromedial glide of tibia to new restrictive barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	
	Fibular head anterior	1. Patient sits with his/her legs hanging off the table and physician grasps fibular head between index and middle fingers and the thumb of one hand 2. Physician's other hand grasps the patient's foot 3. The tibia is internally rotated and the foot is plantar flexed and inverted, carrying the fibular head posteriorly to the restrictive barrier 4. Patient turns foot outward while the physician offers isometric counterforce for 3 to 5 seconds. 5. Patient and physician relax completely (1-2 seconds) and then physician moves fibular to new restrictive barrier. 6. Repeat steps for and 5 until best motion is obtained, typically 3-5 times 7. Recheck	
	Fibular head posterior	1. Patient sits with legs hanging off table and physician places thumb behind fibular head to carry it in an anterolateral direction 2. Physician's other hand dorsiflexes and everts foot and externally rotates tibia. 3. Patient turns foot inward while physician offers isometric counterforce for 3-5 seconds. 4. Patient and physician relax completely (1-2 seconds) and then physician moves fibula to new restrictive barrier 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	
	Anterior talus	1. Patient sits with legs hanging off table and physician grasps patient's heel in palm of one hand and grasps talus between index and middle fingers and thumb of other hand. 2. Apply slight traction to ankle joint, plantar flex foot and internally or externally rotate, evert or invert to reach point of balanced ligamentous tension 3. Patient pulls toes upward while physician offers isometric counterforce for 3-5 seconds. 4. Patient and physician relax completely (1-2 seconds) and then physician moves let to new point of ligamentous balance. 5. Repeat steps 3 and 4 until best motion is obtained, typically 3-5 times 6. Recheck	

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- 2) Nicholas AS, Nicholas EA. Atlas of Osteopathic Techniques. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2016:505-545.