

Protocol for Cox® Technique Hands-On Portions of Courses
*step by step instructions for treating patients with
Cox® Distraction Decompression Adjustment & Manipulation
Protocol I and II Instructions - Lumbar Spine
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NOTE: Please see the textbook, Low Back Pain: Mechanism, Diagnosis, Treatment, 6th edition, published by Lippincott, Williams & Wilkins, for the full explanation and rationale for Cox® Distraction Manipulation and the diagnostic workup leading to a treatment plan for each patient you treat. This serves as a simple guide of the protocols for training.

1. Patient Positioning Sequence

- Check that locks are secure.
- Assist patient onto table:
 - tighten abdomen and buttocks
 - assist patient onto table
 - have arms rest on arm rests
- Check patient Placement
 - ASIS 2" forward on thoracic piece
 - adjust footpiece
- Set spring tension / power balance for caudal section

2. Tolerance Testing (to determine level of securing patient during adjustment)

- Release Flexion-Extension Lock
- Central Distraction Testing
 - *IF PAIN LATERALIZES, ice, acupressure, etc., only for a day or two.*
 - spinous process contact
 - downward table movement till occiput extends or 2"
 - hold for 4 seconds
 - test L5-S1 first, move cephalward
- Lateral Distraction Testing
 - *IF PAIN LATERALIZES WITH HOLDING ANKLES, then only move the table with the tiller bar as in central testing.*
 - spinous process contact
 - hold ankle (first uninvolved, then involved)
 - downward table movement till occiput extends or 2"
 - hold 4 seconds
 - test L5-S1 first, move cephalward
- Test with cuff on
 - *IF PAIN LATERALIZES WITH THE CUFF ON, then only move the table and control the patient by holding the ankles as in lateral testing. '*
 - spinous process contact
 - hold ankle (first uninvolved, then involved)
 - downward table movement till occiput extends or 2"
 - hold 4 seconds
 - test L5-S1 first, move cephalward

NOTE: Muscle resistance in the form of spasm is palpated for. If any such sign is present, do not use distraction. If the patient reports pain on tolerance testing with the cuffs on, adjust without the cuffs. If the patient reports pain on tolerance testing while the ankle is held, adjust without holding the ankle which allows just the weight of the legs to be the tractive force. If the patient reports pain on tolerance testing with no tractive force (no holding or cuffs), ice alone, trigger point, acupressure, alternating hot/cold and massage may be called for until local irritation reduces to allow distraction with no signs of discomfort.

3. Palpatory Contact for Increasing Local Soft Tissue Tension

- Third digit contacts interspinous space
- Second and fourth digits contact adjacent muscles
- Be sure not to make your contact hand perpendicular to the spine, *make it more parallel*
- Apply distraction with cuff on ankles
- End point is tautness of interspinous space or muscles
- *This new taut point becomes the TREATMENT START POSITION for all further table movement for treating the disc or facet*

4. PROTOCOL I: Treatment of Sciatic Patients

- Patient Positioning
- Tolerance Testing
- Cuff on
- Disengage flexion-extension lever

- Apply palpatory contact to set *treatment start point*
- Apply 3 twenty second distractions
 - 5 pumps of 4 seconds each with F/D or long-y-axis
- Depth of caudal distraction = occiput extension or 2"

5. PROTOCOL I: Trigger Point

- Between each 20-second session, treat appropriate trigger point of the affected dermatome (ex: L5 sciatic nerve in gluteus, back of thigh, popliteal fossa, back of calf and ankle)

6. PROTOCOL II: Treatment of Non-Sciatica Patient - Full Facet ROM

- Prepare the patient as follows:
 - patient positioning
 - tolerance testing
 - cuff on (or off if patient experiences pain with cuff on)
 - move footpiece caudally until taut

7. Flexion

- Disengage flexion-extension lever.
- Apply palpatory contact to set new taut treatment position.
- Make spinous process contact with thenar or finger/thumb. (*Remember: parallel, not perpendicular.*)
- Lift spinous process cephalad as table flexes.
- Apply one second velocity flexion movements.
- Amplitude and dosage are applied to patient pain and tolerance levels.
- Stop caudal table flexion as occiput extends or 2" of downward table movement.
- Movement is smooth, rhythmical, oscillatory motion
- Return table to neutral position and secure locks OR leave unlocked for lateral flexion.

8. Lateral Flexion

- Perform under distraction.
- Disengage levers for flexion and lateral flexion.
- Apply palpatory contact to set taut new treatment position in flexion. (*Remember: parallel, not perpendicular.*)
- Apply flexion to occiput extension or 2" of downward table movement.
- Hold spinous process between index finger and thumb or use thenar contact.
- Apply 1 second velocity lateral flexion movements to each side (right and left).
- Amplitude and dosage applied to patient pain and tolerance levels.
- Resist spinous process with thumb or index finger.
- Movement is smooth, rhythmical, oscillatory.
- Return table to neutral position and secure locks OR leave unlocked for circumduction.

9. Circumduction

- *Perform from neutral starting position* (no taut starting position set).
- Couples flexion/distraction and lateral bending.
- Grasp spinous process between thumb and index finger or use palmar thenar contact. (*Remember: parallel, not perpendicular.*)
- Apply 2 second movements to right and then to left.
- Amplitude and dosage applied to patient pain and tolerance levels.
- Movement is smooth, rhythmical, oscillatory motion.
- Return table to neutral position and secure all locks.

10. Extension

- Release flexion-extension lever.
- Contact SP between index-thumb or palmar contact.
- Apply anterior pressure as table comes into extension.
- Apply one second repetitions (10 for test).
- Amplitude and dosage applied to patient pain and tolerance levels.
- Movement is a smooth, rhythmical, oscillatory motion.
- Return table to neutral position; secure all locks.

11. Getting Patient off Table / Ending Adjustment session

- Return table to horizontal/neutral position.
- Check that all locks are secure.
- Remove ankle cuffs.
- Assist patient off the table (instruct patient to push up off of the arm rests).

OTHER TREATMENT OPTIONS:

A. Attended Automated Axial Distraction (non-sciatica patients only) - Lumbar Spine Adjusting

- Using the footswitch
 - *The switch must be in the DOWN position on the caudal tiller bar.*
 - Apply ankle cuffs, if appropriate.
 - Make the contact with the spinous at the level desired - with both hands or with one hand and rest the free hand on the ball handle
 - Touch the foot/tapeswitch with your foot
 - Allow the table to distract as far as necessary to open the joint space
 - Release the foot/tapeswitch to allow table to come back to neutral
 - Make the next contact with the spinous at the next level desired & repeat procedure
- Using the finger button (on the caudal tiller bar at the back of the bar beneath the ball handle)
 - *The switch must be in the DOWN position on the caudal tiller bar.*
 - Apply ankle cuffs, if appropriate.
 - Make the contact with the spinous at the level desired with one hand
 - Rest the other hand on the ball handle comfortably enough that the middle finger is in reach of the button.
 - Touch the button with your finger.
 - Allow the table to distract as far as necessary to open the joint space
 - Release the button to allow the table to come back to neutral
 - Make the next contact with the spinous at the next level desired & repeat procedure
- Using the controller
 - *The switch must be in the UP position on the caudal tiller bar.*
 - Apply ankle cuffs, if appropriate.
 - On the box on the side of the table,
 - Set the time for the table to run in auto mode.
 - Set the distance for distraction while you adjust the patient.
 - Push the "start" button on the front of the box.
 - Starting at L5S1 and working up the lumbar spine, make a two-handed contact or one-handed contact (with the free hand resting on the ball handle) with the spinous at the appropriate level(s).
 - Once each level has been distracted, ranges of motion may be combined with axial distraction, per instructions as explained in Steps 7, 8, 9, & 10, as appropriate for the patient and his/her condition. Always first distract the spinal segment, then go into the ROM desired.
 - Flexion
 - Extension
 - Lateral flexion
 - Circumduction

B. Unattended Automated Axial Distraction (non-sciatica patients only) - Full Spine Adjusting

- *The switch must be in the UP position on the caudal tiller bar.*
- Apply ankle cuffs, if appropriate.
- Apply the occipital restraint, if appropriate.
- On the box on the side of the table,
 - Set the time for the table to run in auto mode.
 - Set the distance for distraction while you adjust the patient.
- Show the patient where the "patient emergency stop button" is under the right armrest. Explain that it can be pushed if the patient feels pain during the session.
- Allow the table to deliver an unattended traction therapy session as setup.
- Check in on the patient occasionally during the session.

C. Thoracic Spine Adjusting

- Using Lumbar Attended Automated Axial Distraction
 - Apply ankle cuffs, if appropriate.
 - Allow the table to axially distract per your control during the *distraction adjustment* and open the joint space. Move up the thoracic spine, as appropriate.
 - Using the footswitch
 - Use a two-handed contact of the spinous at the appropriate level.
 - Tap the foot/tapeswitch to allow the table to move axially.
 - Release the foot/tapeswitch to allow the table to return to neutral.
 - Using the finger button
 - Use a one-handed contact of the spinous at the appropriate level.

- With the free hand, tap the finger button on the tiller bar beneath the ball handle to allow the table to move axially.
- Release the finger button to allow the table to return to neutral.
- Using the controller
 - On the box on the side of the table,
 - Set the time for the table to run in auto mode.
 - Set the distance for distraction while you adjust the patient.
 - Use a two handed contact of the appropriate spinous at the appropriate level.

***NOTE:** A high-velocity, low-amplitude adjustment may be given during lumbar attended automated axial distraction as just described. This can be applied at any desired level of thoracic spine according to patient need and tolerance.*

- **Using Cervical Axial Distraction Section -**

- **OPTION 1 - Manually Applied**

- Apply the occipital restraint system to stabilize the head.
- Stand at the head of the table.
- Use a palmar contact on the spinous below the thoracic segment to be distracted
- Pull on the ball handle of the cervical headpiece to distract the segment to the point of elastic resistance. Move slightly beyond that point, minding at all times patient tolerance.
- Gently return to neutral.
- Move caudad to the next thoracic spinous, and repeat.

- **OPTION 2 - Applied in Conjunction with Automated Axial Distraction Caudally**

- Apply the occipital restraint.
- Allow the table to axially distract the caudal section. Adjust the thoracic spine during:
- Using the footswitch
 - Use a two-handed contact of the spinous at the appropriate level.
 - Tap the foot/tapeswitch to allow the table to move axially.
 - Release the foot/tapeswitch to allow the table to return to neutral.
- Using the controller
 - On the box on the side of the table,
 - Set the time for the table to run in auto mode.
 - Set the distance for distraction while you adjust the patient.
 - Use a two handed contact of the appropriate spinous at the appropriate level.

***NOTE:** A high-velocity, low-amplitude adjustment may be given during thoracic attended automated axial distraction as just described. This can be applied at any desired level of thoracic spine according to patient need and tolerance.*

D. Cervical Spine Adjusting

The addition of long y axis for cervical spine distraction adjusting offers a more controlled, safer application.

IMPORTANT NOTES:

- Cervical spine adjusting is performed without the occipital restraint system.
- All ranges of motion are done in conjunction with long y axis distraction.
- The contact hand on the spine moves parallel with the instrument's cervical axial distraction with the same force and velocity.
- Each movement is performed to the barrier of elastic resistance as determined by the doctor's tissue tension sense and taken then slightly beyond that barrier. *Patient tolerance is monitored at all times.*

PROTOCOL 1 FOR THE CERVICAL DISC HERNIATION PATIENT (PAIN BELOW THE ELBOW):

- Position the patient with the specific area to be treated over the division between the cervical and thoracic pieces.
- Only long y axis distraction (with an optional slight degree of flexion set at a comfort level for the patient) is used to treat acute radiculopathy.
- Test for tolerance.
 - Contact cervical spinous process-transverse process with one hand while long y axis traction with the cervical headpiece is applied with the other hand on the traction handle at the head of the table. (*Alternative Plan: Use the patient's headweight as the traction force so that very gentle distraction is given if the hand contact causes pain.*)
 - Hold each spinous process-transverse process segment for 4 seconds.
 - Ask patient if he/she feels any pain in the neck shoulder, arm or thoracic spine.
NOTE: Muscle resistance in the form of spasm is palpated for. If any such sign is present, do not use distraction. Instead use trigger point, acupressure, alternating hot/cold and massage until local irritation reduces to allow distraction with no signs of discomfort.
 - Test the next level moving caudad.
- Apply long y axis distraction to set *treatment start point* which is the point of tautness of the interspinous space.
- Apply 3 twenty second distractions
 - 5 pumps of 4 seconds each with F/D or long-y-axis
- Between each 20-second session, treat appropriate trigger points of the affected dermatome.
- End the adjustment session.
 - Instruct patient to push up on the arm rests.
 - Assist patient to upright position.

PROTOCOL 2 FOR THE NON-DISC HERNIATION PATIENT (NO PAIN BELOW THE ELBOW):

Position the patient

- Place the specific area to be treated over the division between the cervical and thoracic pieces.

Test for tolerance.

- Contact cervical spinous process-transverse process with one hand while long y axis traction and all ranges of motion with the cervical headpiece are applied with the other hand on the traction handle at the head of the table. (*Alternative Plan: Use the patient's headweight as the traction force so that very gentle distraction is given if the hand contact causes pain.*)
- Hold each spinous process-transverse process segment for 4 seconds.
- Ask patient if he/she feels any pain in the neck shoulder, arm or thoracic spine.
- NOTE: Muscle resistance in the form of spasm is palpated for. If any such sign is present, do not use distraction. Instead use trigger point, acupressure, alternating hot/cold and massage until local irritation reduce to allow distraction with no signs of discomfort.
- Test the next level moving caudad.

Long Y Axis Axial Distraction

- Grasp the spinous-transverse process of the vertebra at the level of distraction motion desired. (ex: Grasp C5 to move the C5 segment.)
- Release the axial distraction lock.
- Standing at the side of the instrument, gently push the headpiece axially using the ball handle and the vertebra contracted with the doctor's hand until tissue tension sense notes the barrier of elastic resistance (*the treatment start point*).
- Go slightly beyond the barrier of elastic resistance, carefully monitoring patient tolerance.
- *The contact hand and the instrument's motion guided by the cervical tiller bar move parallel.*
- Gently bring back to neutral.
- Move to the next level, and repeat.

Lateral Flexion

- Grasp the spinous-transverse process of the vertebra at the level of lateral flexion motion desired.
- Unlock the lateral flexion lock.
- Move the headpiece into long y axis distraction.
- Laterally flex to the left first, then the right.
- Stabilize the transverse process away on the side of lateral headpiece flexion with the contact hand as the level to be laterally flexed is brought into lateral flexion by the headpiece motion.
- Laterally flex the headpiece until tissue tension sense notes normal physiological motion.
- Gently bring back to neutral.
- Move to the next level, and repeat.

Circumduction (a combination of lateral flexion and flexion movement)

- Grasp the spinous-transverse process of the vertebra at the level of circumduction motion desired.
- Unlock the flexion and lateral locks.
- Move the headpiece into long y axis distraction.
- Circumduct to the left, then to the right.
- Circumduct the headpiece until tissue tension sense notes normal physiological motion. *(This is a strong movement and important to regain mobilization of the cervical facets.)*
- Gently bring back to neutral.
- Move to the next level, and repeat.

Extension

- Grasp the arch of the spinous-transverse process of the vertebra at the level of extension motion desired.
- Unlock the flexion-extension lock.
- Extend the headpiece until tissue tension sense notes normal physiological motion.
- Gently bring back to neutral.
- Repeat as necessary at each joint level. Move to the next level, and repeat.

Rotation

- Grasp the spinous-transverse process of the vertebra at the level of rotation motion desired.
- Unlock the rotation twist lock.
- Move the headpiece into long y axis distraction.
- Rotate to the left, then to the right.
- Rotate the headpiece until tissue tension sense notes normal physiological motion by holding the arch securely while the segment rotates.
- Gently bring back to neutral.
- Move to the next level, and repeat.

End the adjustment session.

- Instruct patient to push up on the arm rests.
- Assist patient to upright position.

REFERENCES:

Lumbar Spine and Thoracic Spine Techniques

Low Back Pain: Mechanism, Diagnosis, Treatment, 6th ed,
Published by Lippincott Williams and Wilkins, 1999.

Cervical and Thoracic Spine Techniques:

Neck, Shoulder, Arm Pain: Mechanism, Diagnosis, Treatment, 3rd ed, 2005,
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